THE COMPOSER'S MIND THROUGH THE LOOKING GLASS: AN ANALYSIS OF PITCH-CENTRICITY IN *ZAIDE/ADAMA*

Part I

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This dissertation argues that the structural methods of pitch analysis remain inadequate for the task of explaining what composers are actually doing in their minds. In this work, I address the following questions: where the structural unit appears, does 'pitch,' as an isolated term, still affect the contemporary composer's mind; what is the nature of the composer's mind; and where does pitch fit into the context of the assemblage of Mozart's unfinished opera *Zaide* and Chaya Czernowin's second opera *Zaide /Adama*? What is pitch and what does it have to do with contemporary music compositions? What is the true nature of the musical idea and what is the source of this idea? Furthermore, how can a person understand the subjective experience of this musical idea in a composer's mind?

Composition is not the mere imitation of previously experienced contexts. Performativity as practicality and abstract thinking in the forms of the objects and rules of the mind as distinct from the subjective experience and

syntax recognition provide complex incompatible mediums for composers. Syntactic structuralism is identical neither to the sensations nor to the ideas of the contemporary composer. As a composer, I believe that the reduction of the complexity of composition erodes the nature of the composer's creative ideas. In this text, I argue for the impossibility of generative processes to reduce sounds that we create into immediate simpler entities and the inability of larger entities to be made explicitly recognizable or reproducible. Chaya Czernowin's music in general, in my opinion, represents an excellent example of this non-reducibility.

BIOGRAPHICAL SKETCH

Can Bilir is a composer and classical guitar player. He is a doctoral candidate in music composition at Cornell University. His compositional and research interests include, but are not limited to, music theory, cross-modal perception, and the philosophy of mind. He received his MFA in composition (2017) from Cornell University and his MM in composition (2014) and BM in classical guitar (2010) from Bilkent University; he is the recipient of Fulbright Scholarship (2014-2016).

Bilir studied composition with Kevin Ernste and Roberto Sierra through 2014-2019 and Steven Stucky through 2014-2016 during his doctoral studies at Cornell University; Chaya Czernowin through 2017-2018 during his research as an exchange scholar at Harvard University; Tolga Yayalar, Gokce Altay, and Onur Turkmen during his graduate studies at Bilkent University; and Turgut Pogun during his undergraduate studies at Bilkent University. His primary classical guitar mentors are Kagan Korad and Kursad Terci.

Bilir was commissioned by the Grammy-nominated Aizuri Quartet with winner Kinan Azmeh for the Metropolitan Museum of Art; Ariana Kim for the Cornell Council for the Arts Biennial project Le Storie Vita Nel Legno in Italy and the US; Xak Bjerken and Rachel Calloway in collaboration with Ishion Hutchinson; and for major European festivals, such as a MusMa composer. Bilir has also composed for the Grammy-nominated JACK Quartet, the Momenta Quartet with the Cornell Gamelan Ensemble, Ensemble X with conductor Chris Kim, Ensemble Adapter, Distract-fold, Continuum Ensemble NY, sTem, OSSIA, the IPSE, New York New Music Ensemble, the Cornell Festival Chamber Orchestra with conductor Kisun Sung, the Turkish Radio and Television Corporation Polyphonic Choir, the Cornell Symphony Orchestra with conductor Adrian Slywotzky, and so on.

Bilir's works elaborate the soundscapes and culturescapes of conflict, natural and human-caused disasters, animism and other-than-human-persons, consciousness, dream, memory, haunting, and the decolonization of the self-colonial thought, expression, and emotion in composition.

Dedicated to Zinnur Bilir

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LIST OF ABBREVIATIONS

A.S.E.: A priori subjective experience or qualia

EDO: Equally-divided octave

F0: Fundamental frequency

FFT: Fast Fourier transform

ICV: Interval class vector

L: Leading tone exchange transformation

M: Major

m: Minor

MI: Morphological Invariance

N: Nebenverwandt transformation

P: Parallel key transformation

Px: Perfect interval

R: Relative key transformation

TT: Tritone

INTRODUCTION

If there is a shared and common identity of composers today, it is located beyond nationality, ethnicity, and history, not only physically but also mentally. This is my interpretation of the identity of the new composer that Chaya Czernowin defines in her paper "The Other Tiger."[1] The current identity of composers and their work differs from the past forms of identities and varies from previous structures. In my opinion, the new identity of the composer shares significant commonalities with Jacques Derrida's idea of the New International.[2] Derrida writes that:

> It [the New International] is an untimely link without title, and without name, barely public even if it is not clandestine, without contract, 'out of joint,' without coordination, without party, without country, without national community (International before, across, and beyond any national determination), without co-citizenship, without common belonging to a class. The name of new International is given here to what calls to the friendship of an alliance without institution.[3]

The new compositions that are composed by the new international composers, therefore, are not contingent on the past apparatus that had been used to create and to listen, at least in the way that the past apparatus had been presented as

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[1] Chaya Czernowin, "The Other Tiger" in *The Second Century of New Music; Search Yearbook Volume 1,* ed. Franklin Cox, Daniel Peter Biro, Alexander Sigman, Steven K. Takasugi, (Lewiston: Edwin Mellen Press, 2011), 182 - 189.
[2] See Jacques Derrida, *Specters of Marx* (Routledge, New York: 1994), 35-47, 62-64, 105-128.
[3] Derrida, *Specters of Marx*, 106-107.

an artifact of past presences. On this subject, Czernowin defines a meta-theory, which she outlines in her section, "Theory: An Excerpt from an Imaginary Composition Book of Changes Accompanied by Secret Translations." Four divisions in this section are significant to understanding the motif beyond past identities or the transcendence from the nationality, history, and ethnicity of the composer to new levels of musical presence and meaning. These divisions, in Czernowin's own words, are:

> 1) Instead of tonality and its fixed forms, every composer in every piece must determine the framework of the work. Every piece has to teach the listener how to listen to it: what matters, what does not matter, what is at work…
> 2) Instead of counterpoint, a dialogue between partners/strangers who exist far apart from one another, or a dialogue between dissenting or opposing sides existing within one body…
> 3) Instead of harmony and harmonic progression, invented noises, everyday noises, theatrical elements, language, and "pure" musical sound unite into clumps of sonic events, where through the different media, the context is highlighted and made clear…
> 4) Instead of a melody or a motive, a naked musical atom or "dust particle." Instead of the masks of musical styles, an exposed discourse, raw energy…[4]

I think the centerpiece here is about the attention to "pure musical sound,"[5] instead of the reproduction of simple forms of past musical appearances, as

[4] Chaya Czernowin, "The Other Tiger," 187.
[5] Chaya Czernowin, "The Other Tiger," 186-188.

something else that encompasses non-reductive complexity and emerges from conscious subjective experiences towards sound.

By nature, sound is complex with respect to both the physical traits of sound and the sensations of sound via human sensory perception and cognition. In consideration of the physicality and cognitive aspects of auditory perception, the nature of pitch, as a limited-simple-fixed form of representation of sound, should be complex too. However, pitch, especially in its form of musical usage, and particularly in tonal music, has been conventionally considered as a simple static-fixed entity, not a complex one. In addition to the comprehensive meaning that is associated with pitch, static pitch entities are mental properties that are reduced from material properties as structural entity recognitions in their simple forms.[6]

Pitch, as a fixed-simple entity of music, can create indefinite numbers of simple and complex musical appearances; thus, pitch is generative in the contexts of tonality, counterpoint, harmony, and melodic, motivic, small, and large-scale musical formations. Static pitch, in general, has been a central, simple, and unified form of entity that connects these musical contexts to one another as a manifold. In Czernowin's musical thinking, however, these simple

[6] See Alain de Cheveigné, "Pitch perception models," in *Pitch: Neural Coding and Perception* ed. Christopher Plack et al. (New York: Springer, 2005), 206-207.

fixed forms, even if they are present, are no longer representations of past simple appearances.

The physiological aspects of complex and simple appearances of static pitch as a structural entity, as a fixed form of compositional creative processes from the past and the generative nature of static pitch, stem into an intricate dualism in human understanding as the incompatibility between material and the mind. Therefore, it requires a systematic examination of the modalities of the material and mental properties of sound.

In this dissertation, I examine the nature of this particular definition of pitch as static entity recognition in musical syntaxes in light of its manifestations in Chaya Czernowin's second opera *Zaide/Adama*. The initial inspiration of this framework was the concepts derived from, but not limited to, Czernowin's "Theory,"[7] such as the new definitions of dialogs, complex sounds, linguistic expressions, and, particularly, the correlation of the melody and motifs decomposed into dust particles. The dust particles in *Zaide/Adama* are not merely simple revelations of the complex structures via the decomposition of the opera into analytical components. It requires detailed study of both the philosophy and the generative processes that the opera has emanated from. I examine this comprehensive subject in four chapters.

[7] Czernowin, "The Other Tiger," 186.

The first chapter focuses on the *Zaide*/*Adama* assemblage, and the historical problematic of the incompleteness of *Zaide*. This chapter includes the subjects of the libretto and plot, my interpretations of the letters between Leopold Mozart and Wolfgang Amadeus Mozart, a comparison between *Zaide* editions, and *Zaide*'s relation to *Idomeneo*, *Die Entführung aus dem Serail*, and related unfinished Mozart works.

The second chapter elaborates the philosophy behind musical idea creation and provides a philosophical framework for the nature of the composer's mind and creative processes. This chapter includes discussions of the *through-the-looking-glass state,* as the necessity of the introspective mind of the compositional creative processes; substance dualism between the material and the mind in light of Kantian philosophy; Leibnizian foundations of entity recognitions; and, finally, the tripartite model of compositional creation that separates the material from the mental properties, in addition to the separation of the mental properties into two as the *a priori* subjective experience of sound and musical syntax recognition.

The third chapter examines the concept of static pitch entities through the lenses of auditory perception, cognition, and musical language. The subjects addressed in Chapter II have strong connections to the foundations of the classification of pitch. In particular, the Kantian theory of analysis and synthesis

strongly influenced the evolution of theories of listening and hearing, such as in Hermann von Helmholtz's and Pierre Schaeffer's theories of hearing and listening. In this chapter, in addition to analyzing sensory perception, the concept-dependency of consonance theory, and sound perception, I examine the cognitive foundations of sound 'hierarchies' in parallel to the musical counterparts of syntactic structure recognitions, which have foundations derived from Chomskian generative theory in linguistic studies.

The fourth chapter includes my analytical observations of *Zaide/Adama*. These observations are informed by a close reading of the scores of both the 2006 and 2017 versions of the opera, the 2006 recording, and in-person observations of the 2017 Freiburg performances interpreted via computer-assisted analysis and the application of musical theories including the Consonance Theories of Chladni and Helmholtz, Functional Harmony, Musical Set Theory, Neo-Riemannian Theory, and Galant Schemata.

It is important to note that this research included personal communications with Chaya Czernowin during my composition study with her between 2017 – 2018 at Harvard University. However, this study does not appropriate her thoughts of the opera or her music, but instead presents my original understanding of the presence of pitch in *Zaide/Adama*.

Zaide/Adama, as a complete work, complicates the human understanding and recognition of the definitions of pitch and sound entities. Czernowin's musical language is embedded within these sound entities, where they generate nonreductive complexities and monolithic meaning levels. At the same time, in *Zaide/Adama* as a whole, Czernowin's compositional decisions prevent both composers' musical identities from concealing the other one or dissolving into one another. This allows the audience to understand each opera as an autonomous and distinctive agent.

Parallel to *Pnima…ins Innere*[8] and *Infinite Now*[9], the first and third operas by Czernowin, identity, gender, individualism within society, borders, power relations, violence, torture, memory, and remembrance are subjects and motifs observed in every level of *Zaide/Adama*, including the internal musical organization of the work and, also, between the two diverse musical aesthetics of Mozart and Czernowin. For the sake of keeping the focus of the study to pitch in the opera, I did not examine these subjects deeply, and excluded an examination of *Pnima* and *Infinite Now*. However, since these subjects and motifs factor into musical decisions, I incorporated them into my discussion of the presence of pitch.

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[8] Chaya Czernowin, *Pnima…ins Innere (Pnima Inwards) 1998-1999* (Mainz: Schott, 2010).
[9] Czernowin, *Infinite Now* (Mainz: Schott, 2017).

CHAPTER I
BACKGROUND OF THE OPERAS *ZAIDE* & *ZAIDE/ADAMA*

AN UNFINISHED MOZART OPERA

Zaide (or *das Serail* K 344/336b as it appears in the *Bärenreiter* Urtext 1957 edition) is an incomplete *singspiel* in two acts, composed by Wolfgang Amadeus Mozart between 1779 and 1780.[10] The opera lacked a title at the time of Mozart's composition; the title *Zaide* was given to the opera in the first edition of 1838.[11] David J. Buch writes that the first publisher Johann Anton André, after he obtained the autographed score from Constanze Mozart, named the opera *Zaide* after the main female protagonist.[12]

The cast of *Zaide* includes: *Zaide*-soprano, Gomatz-tenor, Allazim-bass, Sultan Soliman-tenor, Osmin-bass, 4 Slaves-tenors, Zaram-speaker.[13] A libretto

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[10] Wolfgang Amadeus Mozart. "Zaide (Das Serail)" in *Neue Ausgabe samtlichter Werke: Serie II Bühnwerke, Werkgruppe 5: Opern und Singspiele* (Band 10: Basel: Bärenreiter Kassel, 1957).
[11] See Mozart, W.A. and Schachtner, Andreas. *Zaide: Oper in zwei Acten* (Offenbach am Main: Johann Anton André, 1838).
[12] David J. Buch. "Mozart's German Operas" in *The Cambridge Companion to Mozart*, ed. Simon Keefe (Cambridge: Cambridge University Press, 2003) 159-160.
[13] Mozart, *Zaide*, 1957.

does not exist in the 1957 Bärenreiter edition; however, it appears in the 1838 vocal score.[14]

Johann Andreas Schachtner, the trumpeter and a long-time collaborator of Leopold Mozart and Wolfgang Amadeus Mozart, wrote the libretto of *Zaide*.[15] Voltaire's play *Zaire: a Tragedy in Five Acts*[16] (The Tragedy of Zara) might be a source for the plot of the opera. *Zaire* had its first public performance in 1732 in Paris. According to archival sources, Mozart was aware of *Zaire* for at least two years before he started to compose *Zaide*. Leopold Mozart wrote to his son about the music of Michael Haydn's *Zaire* in a letter dated 30 September 1777 sent from Salzburg.[17]

A source more closely resembling the libretto of *Zaide* is the musical work by Johann Joseph Friebert, *Das Serail,* with the subtitle *Ein Musikalischen Singspel, gennant: Das Serail. (Oder: Die unvermuthete Zussamenkunft in der Schlavery zwischen Vater, Tocther und Sohn).*[18] Freibert's *Das Serail* was performed in Wels in

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[14] Mozart and Schachtner, *Zaide: Oper in zwei Acten*, 2-8.
[15] Neal Zaslaw, *The Compleat Mozart: A Guide to the Musical Works of Wolfgang Amadeus Mozart*, ed. William Cowdery (New York: W.W. Norton & Co., 1990) 51-52.
[16] Voltaire, *Zaire* (Paris: Ernest Leroux, 1889).
[17]Emily Anderson trans. and ed., *The Letters of Mozart and His Family (*London: Macmillan, 1985), 286-289, letter 213.
[18] Joseph Friebert, Franz Joseph Sebastiani, *Ein Musikalischen Singspel, gennant: Das Serail. Oder: Die unvermuthete Zussamenkunft in der Schlavery zwischen Vater, Tocther und Sohn* (Botzen: Karl Joseph Weiß, 1779). Trans. "A Musical Drama

1777 and was published in 1779.[19] Leopold Mozart's letters are informative about *Zaide*'s background, although they do not provide detailed information of the relations between *Zaide*, Friebert's *Das Serail*, and Michael Haydn's *Zaire*. Nonetheless, both Leopold Mozart and Wolfgang Amadeus Mozart were actively engaging with French and central European thought and intellectualism;[20] with respect to a complicated parallelism between these works, both composers' attention to the works is evident in their written correspondence with respect to the "Turkish"[21] themes and plot of *Zaide*. Turkishness in this context refers to a Muslim-Christian dichotomy with respect to *Zaire*.[22] In Mozart's opera *Zaide*, even though "the religious affiliations of Zaide and Gomatz are ambiguous,"[23] the rest of the characters and the plot confirm a national and religious separation between the parties.

Called: The Seraglio, or The Unexpected Reunion of Father, Daughter and Son in Slavery." See Zaslaw, *Compleat Mozart, 52*.

[19] Martin Nedbal, "'Das Serail' (1778) by Joseph Friebert in Historical, Socio-political and Cultural Context(s), Universität Mozarteum Salzburg," *Eighteenth century music*, 14(1), (19–21 May 2016): 160-162.

[20] See Stephen Rumph, *Mozart and Enlightenment Semiotics* (Berkeley: University of California Press, 2012).

[21] Anderson, *The Letters of Mozart*, 286; letter 213.

[22] See Voltaire, *Zaire*, 34. In Voltaire's play *Zaire*, the scenes are in the Serail in Jerusalem, not in the Ottoman serail.

[23] Martin Iddon, "Giving Adam Voice: Troubling Gender and identity in W.A. Mozart's Zaide and Chaya Czernowin's Adama," in *Masculinity in opera: gender, history, & new musicology*, ed. Philip Purvis (New York: Routledge, 2013), 169.

The score of *Zaide* includes a set of fifteen musical sections completed by Mozart: mainly two large sectional fragments, one that starts after the initial *Coro*, *Melologo* in Act I and *Melolog ed Aria* (Soliman) in Act II, 4 *Arias* in Act I, 5 *Arias* in Act II, 1 *Duetto* (*Zaide* and Gomatz) in Act I, 1 *Terzette* (*Zaide*, Gomatz, Allazim) at the end of Act I, and 1 *Quartetto* (Gomatz, Allazim, Soliman, *Zaide*) at the end of Act II.

In these fifteen sections completed by Mozart himself, the story of *Zaide* is quite accessible; its plot is shaped around the subjects of love, slavery, punishment, and torture in the Ottoman Palace. Enslaved *Zaide*, the concubine of the Sultan Soliman, falls in love with the slave Gomatz. Allazim, who works in the palace, helps them to escape from imprisonment; however, their joint attempt fails. Soliman then captures the two lovers, tortures them, and sentences them to execution. The tragic ending of *Zaide*'s story stays unresolved in the final section, *Quartetto*, at the end of Act II.

Singspiels, as a popular operatic genre in eighteenth-century central Europe, were expected to be comic operas and were usually associated with light subjects. However, *Zaide* with respect to its libretto and musical features[24] is far more serious than a typical *singspiel*, even by Mozart's own confirmation.[25]

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[24] Linda L. Tyler, "*'Zaide' in the Development of Mozart's Operatic Language,"* Oxford University Press, *Music & Letters*, Vol. 72, No. 2 (May 1991): 214-235.
[25] Anderson, *The Letters of Mozart,* 725; letter 399.

In a letter to his father dated 18 April 1781, Wolfgang wrote that: "the piece [*Zaide*] was very good, but not suitable for Vienna, where people prefer comic pieces."[26] The discussion about the uncertainty of *Zaide* can be seen as beginning four months prior to this letter. On 11 December 1780, Leopold wrote to his son that:

> As for Schachtner's drama it is impossible to do anything at the moment, for the theatres are closed and there is nothing to be got out of the Emperor, who usually interests himself in everything connected with the stage. It is better to let things be, as the music [*Zaide*] is not finished. Besides, who knows but that this opera may later give you an opportunity of getting to Vienna?[27]

Leopold Mozart's letter confirms that *Zaide* was incomplete and elucidates that both he and his son shared concerns about the importance and future success of this work. Following this time frame, we would expect that *Zaide* should have already been in the form of at least a draft score. However, we cannot know the exact scope of its incompleteness.

Mozart was in his early twenties when he started working on *Zaide* and he had already composed more than thirty symphonies and numerous other works. However, the crucial information here is that during the compositional process of *Zaide*, Mozart had not yet reached the height of his successful

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[26] Anderson, *The Letters of Mozart,* 725.
[27] Anderson, *The Letters of Mozart,* 685; letter 373.

operatic career. His greatest operatic commissions started with *Idomeneo* in mid-1780. The approximate date of Mozart's departure from *Zaide* coincides with this commission. This might be the primary reason why Mozart stopped working on *Zaide*.

The question of whether Mozart ever attempted to finish *Zaide* does not have a clear answer, although it is important to mention that a mere three years later in 1782, Mozart completed *Die Entführung aus dem Serail* (The Abduction from the Seraglio), a s*ingspiel* for the German theatre of Joseph II. This new work had a similar Turkish theme to *Zaide*, although it had a much lighter overall tone.

At first glance, there are similarities between the stories of *Zaide* and *Entführung*. However, the libretto and the music of both operas are not analogous. Linda Tyler argues that there are structural parallelism that connects *Zaide*, *Idomeneo*, and *Die Entführung*.[28] Nevertheless, I believe that the obvious parallelisms between the plots and subjects of *Zaide* and *Die Entführung* do not extend to the musical levels of the operas; they are fundamentally different. In the case of *Die Entführung*, we see the same theme of slavery in the Ottoman Palace, but *Die Entführung* is not an attempt to create a complementary piece to *Zaide*.

[28] Linda L. Tyler, "*'Zaide' in the Development of Mozart's Operatic Language*," 214-235.

During Mozart's life *Zaide* was never performed. After completing *Die Entführung* and its subsequent success, it might not have felt ideal to Mozart to prepare *Zaide* for a performance since both operas had almost identical subjects. It is also not surprising to me that in his short and busy musical life, Mozart never borrowed sections from *Zaide* or adapted *Zaide*'s music to other operatic works; as I infer from the discussions in Leopold and Wolfgang Amadeus Mozart's letters, Mozart's musical creativity and its connection to the libretto and subject coexisted.[29] In light of his legendary compositional productivity, he might have decided to compose completely original music for his works after *Zaide*.

Although historically *Zaide* was abandoned to its own destiny as an incomplete work of Mozart, the score of *Zaide* survived after Mozart's death in 1791. It waited to be performed on stage until January 27, 1866, when it was performed in Frankfurt for the celebration of Mozart's 110th birthday. This performance was the first physical embodiment of *Zaide* as the way that it was left by its creator, transcending notions of (in)completeness and emancipated from the cultural norms and expectations of its time while being subjected to those of others.

[29] See Anderson, *The Letters of Mozart and His Family*.

ZAIDE/ADAMA: A COMMISSION FOR CZERNOWIN

The year of 1991 was the bicentenary of Mozart's death. At this time, Mozart's works started to appear in concert programs extensively, while both attention to his music and new studies and publications on his music increased.[30] During this period, there were also other commissions for the completion of the incomplete Mozart works, including a *Zaide* completion by Luciano Berio in 1995 and the *Requiem* commission for Georg Friedrich Haas for the 2004 Salzburg Festival.[31]

As a part of the 250th anniversary of Mozart's birthday, Chaya Czernowin received a commission in 2004 to prepare *Zaide* for a full performance in the 2006 Salzburg Festival. Czernowin, instead of completing the missing parts of *Zaide* according to the stylistic expectations of eighteenth-century operatic aesthetics, projected a completely new opera with the name *Zaide/Adama.*[32] The sound world of the new work was based on dissonances and noisy sounds in contrast to the clarity of the pitch-centric musical language of Mozart.

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[30] Paul Griffiths, *The Substance of Things Heard* (Rochester: University of Rochester Press, 2005), 125.
[31] See Luciano Berio, *Wor, während, Nach Zaide* (Milano: Ricordi, 1995); and Georg Friedrich Haas, *Sieben Klangräume zu den unvollendeten Fragmenten des Requiems von W. A. Mozar*t (Vienna: Universal Edition, 2005).
[32] Wolfgang Amadeus Mozart and Chaya Czernowin, *Zaide/Adama Fragments* (Mainz: Schott, 2006).

The *Adama* cast is much smaller than *Zaide*'s and the names of the cast are generic, with an emphasis on both gender and kinship: Woman and Man as protagonists, and Father as antagonist along with an all-male-choir that appears prominently in *Steinigung*. In addition to this, a separate mixed choir was added to the 2017 version for the Freiburg performances. As a parallelism between *Zaide* and *Adama*, I observe that *Adama*'s antagonists Father and the *Schar* (Crowd) have no singing role in Act I. The antagonists start to sing in Act II predominantly, just like Soliman does in *Zaide*. However, in both the staging and acting of the 2006 and 2017 versions, which were not mounted with the same staging instructions, the antagonists in *Adama* have a significant and provocative silent acting role in Act I. An analogy appears in the score of *Zaide*; in Act I, we only listen to the protagonists Gomatz, Zaide, and Allazim.

Adama's text is multi-linguistic; similar multi-linguistic features appear in Czernowin's third opera *Infinite Now*.[33] In an interview with Linda Dusman, Czernowin discusses *Zaide*/*Adama*:

> With regard to the text, I created a new poem from the Mozart libretto by choosing a few words from each aria and composing them into a poem. I also braided into this poem the Hebrew and Arabic translations of some of the German words. In my setting I often fragment the text and then braid the two languages together: Hebrew for the woman, and Arabic for the man. Many words in *Adama* are taken from the libretto of ZaÏde, written by Schachtner. These words then embody new meanings.

[33] Chaya Czernowin, *Infinite Now* (Mainz: Schott, 2017).

> For example, I would point to the section focused on *erde* [German], land in English. In Hebrew, the word for land is *adama*, and in Arabic it is *ardun*. This is a word that the man and the woman who are in love are slowly repeating, as if they are trying to join the syllables of the Arabic *ardun* and the Hebrew *Adama* in a way that both words would match—but they fail. Basically, this is an enactment of their separation. It's actually more complex because in Hebrew *adam* is man. *Dam* is blood. And *Adama* is land.[34]

Adama's text is not a mere complementation to, nor a substitute for *Zaide*'s missing dialogs. In comparison to the well-formed grammatical language of *Zaide*'s plot that is braided with its tonal language, the isolated words, phrases, and sentences in German, Hebrew, and Arabic, in addition to the English descriptions in the score, mainly stay in the sub-sentential structures of *Adama*, particularly limited with the morpheme and phoneme levels. Thus, *Adama*'s noisy and complex text and musical language exceed conventional levels of meaning.

Instead of complementing the missing parts in both the music and the story of *Zaide*, Czernowin composed *Adama* for the same stage with *Zaide* with a different cast and a new story: the impossible love between an Israeli woman and a Palestinian man. The two lovers are separated by borders, and punished by the father of the woman and the society that she lives in. This story is

[34] Linda Dusman, "Chaya Czernowin: Conversations and Interludes," *Contemporary Music Review* Vol. 34, Nos. 5–6 (2016): 464–477.

presented in fragmentary scenes of the woman's trauma, reflecting the psychological and physical violence that she experiences.

The compositional strategy that Czernowin employed could best be explained by the words in the beginning of the score's 2006[35] and 2017[36] editions:

> Chaya Czernowin has composed the missing places (where the dialogue should have been) as a separate musical sphere. Stylistically this second sphere is a very different musical voice, entirely contemporary and clearly separated almost contrasting to the Mozart – a counterpoint piece. As a semi-independent musical entity, *Adama* has its own singers, own ensemble and conductor.
>
> The two pieces are braided, so that an aria out of *Zaide* is followed by a section of *Adama* interchangeably. At times there are instances of overlapping or simultaneity between the two layers. At one singular point, the whole *Zaide* ensemble and the whole *Adama* ensemble join in a short musical fragment.[37]

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[35] Wolfgang Amadeus Mozart and Chaya Czernowin, *Zaide/Adama*: *Fragments (2004-2005)* (Mainz: Schott, 2006).
[36] Wolfgang Amadeus Mozart and Chaya Czernowin, *Zaide/Adama: Fragments (2004-2005) version with choir* (Mainz: Schott, 2017).
[37] The short musical fragment is *Tränen*. See Mozart and Czernowin, Zaide/Adama, 242-246.

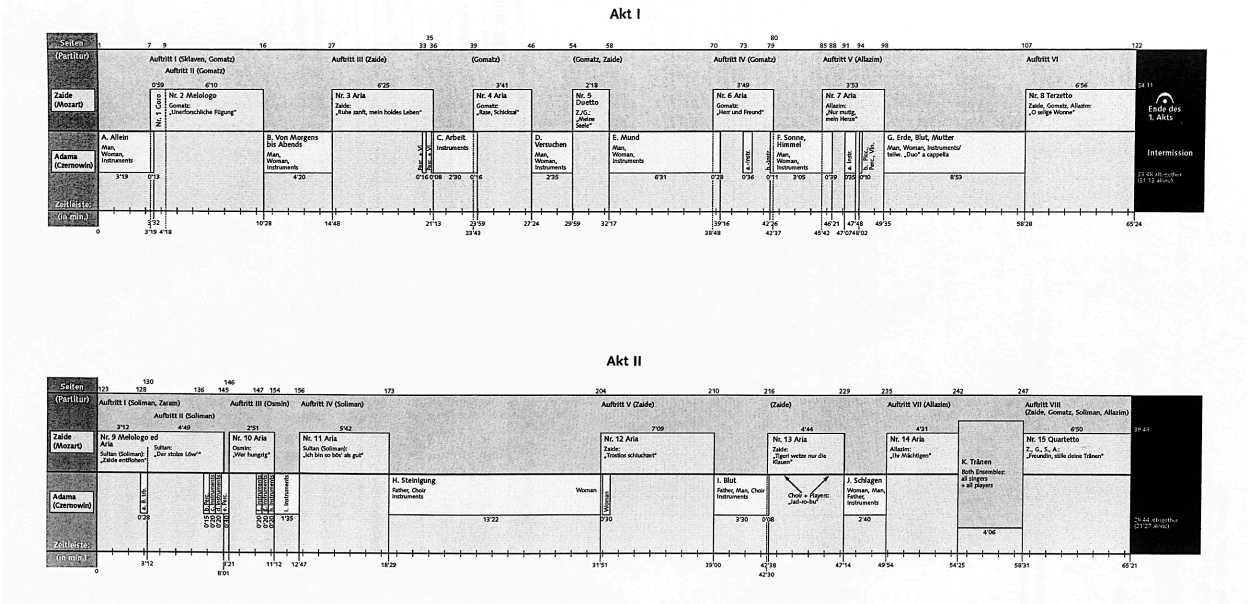

Figure 1. *Zaide*/*Adama* teleological structure[38]

Parallel to the explanation on the score, Julia Spinola indicates that the role of Chaya Czernowin in this project is fundamentally different than the previous attempts to complete the opera, likely referring to Berio's and André's *Zaide* completions. In fact, I believe that *Adama*, with its distinct musical language, differs from Mozart completions such as Schnittke's K 416d *Musik zu einer Pantomime*, Fantasia No. 2 K 396/385f and Fantasia No. 3 K 397/385g. Czernowin's own contribution is entirely autonomous. Spinola writes that:

> By her own admission, Chaya Czernowin was not concerned to complete the existing work. Instead, she consciously treated her own music as a foreign body, inserting it between the individual numbers of Mozart's score and in this way relocating Mozart's self-contained arias and ensembles within the cratered landscape of her own stridently

[38] Mozart and Czernowin, *Zaide*/*Adama* score v.1, 2006.

> eruptive music. She has long been drawn to this type of writing, working with interlocking elements and heterogeneous musical "layers" which, in striking together, create a sense of friction and generate the musical form of the piece.[39]

I believe that Georg Friedrich Haas' *Sieben Klangräume*[40] on *Requiem* represents a similar 'foreign body;' a clear distinction between Mozart's and Haas' musical languages. Both *Zaide/Adama* and *Sieben Klangräume* are works that successfully keep the distinction of their creators' compositional identities in the context of Mozart completions. However, due to the dramatic difference between *Requiem* and *Zaide*, Czernowin's and Haas' approaches should be examined separately. With regard to musical language, there are no shared commonalities between *Zaide/Adama* and *Sieben Klangräume.*

INCOMPLETENESS: A COMPARATIVE EXAMINATION OF *ZAIDE*, *ZAIDE/ADAMA*, AND OTHER RELATED MOZART OPERAS

Zaide has a complicated history in terms of its multi-layered incompleteness. To keep the focus of the study, I will limit the examination of this incompleteness to its relevance to *Adama.*

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[39] Julia Spinola, *Cultural Conflict in Zaide/Adama DVD Booklet* (Hamburg: Deutsche Grammophon GmbH), 5.
[40] Georg Friedrich Haas, *Sieben Klangräume zu den unvollendeten Fragmenten des Requiems von W. A. Mozar*t.

Zaide's incompleteness does not refer to its sketchiness. From the *Adama* angle, I separate *Zaide*'s incompleteness into three categories. The first one is the missing dialogs. Although *Zaide* includes musical sections for orchestra and singers, as a *singspiel* it is missing spoken dialogs. In *Zaide*'s scores,[41] original spoken dialogs are largely absent though the libretto of the musical sections is preserved. As a result of the missing dialogs, the details of the plot and the flow are less clear than expected. The second form of incompleteness is the lack of an opening, and the third one is the ending. The missing opening is stylistically more likely an overture. For the ending, it is possible that Mozart never composed a full third act.[42] Many *Zaide* completions regard the finale as a brief summary for an ending in two Acts.

Some scholars have suggested some of Mozart's own pieces for *Zaide's* missing overture. For instance, as Neal Zaslaw asserts, Alfred Einstein

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[41] See W.A. Mozart, and Andreas Schachtner, *Zaide: Oper in zwei Acten* (Offenbach am Main: Johann Anton André, 1838). See also
W.A. Mozart, "Zaide (Das Serail) KV 344 (336[b])" in *Neue Ausgabe samtlichter: In Verbindung mit den Mozartstädten Augsburg, Salzburg und Wien Herausgegeben von der Internationalen Stiftung Mozarteum Salzburg,* Komponiert 1779/1780 Salzburg, Serie II Bühnenwerke Werkgruppe: 5, Opern und Singspiele Band no: 10 (Basel: Bärenreiter, 1957);
W.A. Mozart, *Zaide (Das Serail) KV 344 (336[b]): Deutsches Singspiel in zwei Akten von Johann Andreas Schachtner,* Serie II Bühnenwerke Werkgruppe: 5, Opern und Singspiele Band no: 10 Klavierauszug (Basel: Bärenreiter Kassel Urtext, 1960);
Mozart and Czernowin, *Zaide/Adama: Fragments* (2006);
Mozart and Czernowin, *Zaide/Adama*: *Fragments* (2017).
[42] Alfred Einstein, "Die Text-Vorlage zu Mozart's Zaide" *Acta Musicologica*, Vol. 8, Fasc. 1/2 (Jan. - Jun., 1936), 30-37.

considered the overture of K 318 for *Zaide*'s missing overture, although Zaslaw thinks that it is "almost certainly too early for *Zaide*." [43]

In addition to this approach of associating possible Mozart's works to his incomplete opera, historically there have been multiple attempts by other composers and librettists to complete the opera for concert situations. One of the earliest examples appears as an 1838 edition for voice and piano,[44] the Offenbach a/M publication for vocal piano score, which is also the earliest known publication of *Zaide*. Johann Anton André writes in this score:

> *Da, wie gesagt, das Textbuch dieser Oper sich bis heute nicht wieder vorgefunden hat, so hat Herr Carl Collmick in Frankfurt es übernommen, den fehlenden Dialog zu schriben, und mit dem Texte der von Mozart componirten Stücke in Zusammenhang zu bringen, so dass diese Oper, wozu ich noch die Ouverture und den Schlussatz componirt habe, nunmehr auch auf die Bühne gebracht werde kann.*[45]

In this publication, Johann Anton André as the composer and Carl Gollmick as the librettist completed an additional Overture [*Overtura*] and finale [*Schlußschor*] for *Zaide* in Mozart's style. According to my own score analysis, I believe that the complementing opening and closing carry immediate motivic and thematic parallelisms to Mozart's own music in *Zaide*. The finale in this publication stands for a single section, which functions as a brief wrap-up for the opera.

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[43] Zaslaw, *The Compleat Mozart,* 199.
[44] W.A. Mozart, *Zaide*, (Offenbach a/M.: J. André, pref. 1838).
[45] W.A. Mozart and Andreas Schachtner, *Zaide: Oper in zwei Acten* (Offenbach a/M: J. André, 1838) 1, Vorbericht. *Overtura*, XII- XXV; *Schlußschor*, 96-105.

Luciano Berio, in his *Vor, Während, Nach Zaide* dated 1995, follows a similar method to André's approach in the first publication of *Zaide*. Although Berio's completion is for full orchestra, which diverges from André's vocal score. Berio complements the missing sections in his work. *Vor,* from pp. 1-24, is the opening that functions as the missing overture, connected to Mozart's score *attacca*, to the Nr.1 Coro. *Während*, from pp. 25-35 in thirteen episodic sections, functions as connection nodes for the inner flow of *Zaide*. On the other hand, *Nach*, between pp. 36-55, is a musical afterword as a substitute for the finale; it is a relatively short section. Berio's completion is pitch centric, carrying motivic connections to Mozart's musical language with an abstraction of stylistic representation of *Zaide*'s sections. However, Berio's work is more distant from the galant style in comparison to André's stylistic completion of the whole operatic drama.

Contrary to both the André and Berio completions, I personally believe that a third act is necessary for the stage performances with orchestra and full cast; a single movement after the *Quartetto* cannot bring about full resolution. Owing to both the tonal trajectory and the plot, the opera requires a full third act, which is parallel to Mozart's later operas as well as the librettos associated with *Zaide*. The opera's ending with regard to the tonal and storyline resolutions is both developmental and inconclusive. Global key centers are parallel to this

inconclusiveness. In *Idomeneo* (1781), the D-major opening of Act I returns in the final movement. In *Die Entführung aus dem Serail* (1782), the C-major opening of Act I returns in the final movement as well. The strong impact of the return back to the tonal center was an archetypical tonal structure in eighteenth-century music, especially in dramatic forms such as sonatas and genres such as operas. This return is expected in terms of the orbit of the hierarchies of particular keys – namely, tonic-dominant relations. In *Zaide*'s case, the D-major opening of Act I does not come back in the last movement. In fact, the opera ends in Bb major. In neo-Riemannian terms, this tonality is a PR Transformation, which is far more distant to the main tonality than the range of the other possible tonalities expected for an ending, especially in consideration of the tonalities associated with relative keys. This is why *Zaide*'s ending, with regard to tonal resolution, does not fulfill conventional expectations: it requires a third act. A parallel incompleteness appears in the plot of *Zaide*.

Table 1. Global keys of three Mozart operas

	Act I	Act II	Act III
Zaide	DM-EM No Overture	DM-B♭M	N/A
Idomeneo	D-D: DM Overture Gm Act I	CM-Dm	EM- DM
Die Entführung	CM- CM	AM-DM	E♭M-CM

In addition to the tonal distance to the main key, the story of Friebert in the Wels performance presents a nuanced difference in comparison to Mozart's *Zaide*'s plot. This might be related to *Zaide*'s missing act at the plot level. In *Das Serail*[46] Zaide and Gomatz are siblings, a fact that is kept hidden from Sultan Soliman until the end. Allazim is likely the protagonists' father or their long-lost brother. This creates a multilayered understanding of what first appears to be a plain love story. The kinship aspects of the plot also shadow the insight of the torture and trauma. At the end of this version, Soliman releases the captives. He renounces his ultimate power; the integrity of the family urges him to renounce his violent deeds. The story in this version ends with a reconciliation between parties. It attempts to legitimize or justify the intricacy of the violence and trauma by representing a happy ending, or *lieto fine*. This ending could be read as a resolution within the bounds of eighteenth-century operatic style.

In Mozart's score, on the other hand, the story remains focused on the romantic love between Zaide and Gomatz. Leaving aside the possibility that Mozart could have been potentially intending to make Zaide and Gomatz siblings in a third Act, *Zaide,* in the form in which Mozart left it, neither

[46] Joseph Friebert, Franz Joseph Sebastiani, *Ein Musikalischen Singspel, gennant: Das Serail Oder: Die unvermuthete Zussamenkunft in der Schlavery zwischen Vater, Tocther und Sohn* (Botzen: Weiß, Karl Joseph Weiß, 1779). See also Iddon, "Giving Adam Voice," 168-173.

complicates the romantic love between two slaves, nor introduces the kinship aspects associated with Allazim.

It is interesting to see the parallelism between *Adama* and *Das Serail,* the latter which is likely independent of Mozart's work; both pieces emphasize the integrity of family, as well as the slavery, violence, and torture of subjects intertwined within the plot. Besides, *Adama*'s own story also depicts the woman's oppression and the victimization of the protagonists.

I think that, especially in the contemporary context, the problematic that *Zaide* initiates is underlined and further embodied within *Adama's* unique sound world and its intricate drama. As a whole, *Zaide/Adama* is not merely a dramatic signification of the irresolvable nature of the complexity of violence, torture, and the enslavement of women. It also complicates the themes of borders, nations, individuals and society, gender and power through artistic expression.

In *Zaide /Adama*, *Adama*'s first section, *Allein* initiates the performance as an overture would presumably have done in *Zaide*. However, distinct from an overture, *Allein* has no parallelism with Mozart's pitch space or the motives and directionality of the melodies of the following sections. This is contrary to the completion crafted by composer André in the first *Zaide* publication in 1838. For the finale, Czernowin also did not compose a complementary closing, neither as a full act nor as a section completed with *Adama*.

In *Adama*'s Act I, Woman and Man's relationship is gradually interrupted; the Father and the choir oppress them. There is an imaginary barrier between them in the 2006 edition. This barrier appears in a physical but transparent form in the 2017 Freiburg performance. The metaphor of the barrier could be read as a representation of the mental and physical impossibility of exceeding all the forms of boundaries that are not only limited to geographical distance and cultural segregation. The Woman and Man's singing are interrupted by short attacks by the Father as a leading voice and the all-male choir, which represents a large society that violently rejects the Israeli Woman's love for the Arabic Man. In Act II, we mainly see scenes of the Woman's excessive torture by both her Father and the choir.

The missing dialogs in *Zaide* are one of its features of incompleteness, in addition to its musical incompleteness. The fundamental approach that Czernowin took was not to fill in the missing story and music, but rather to increase the complexity of the overall expression with her parallel opera, which benefited from the semantic absence of the dialogs. On a musical level, Czernowin did not add a single note to *Zaide*'s score. *Zaide/Adama* is not a mere musical completion.

The climatic curve of *Zaide* coincides with *Adama*'s as well; for instance, the Aria Tiger, which is one of the most dramatic sections in *Zaide*, coincides

with the climatic section of *Adama*. Contrary to providing a weak reaction to the violence as the person who suffers the most, Zaide has the most dramatic and powerfully sung aria, the Tiger. In these climatic sections, Czernowin's character the Woman sings after each cluster of the father and the male choir weakly with peripheral lines that are either slightly moving or falling glissandos. This suggests that their violence and torture are significantly affecting her; the Woman's voice becomes weak and groaning. This also brings a new perspective to the opera by showing the physical reaction to violence. This ties back to the discussion of how we listen to a sound composition in a dramatic form; this form of listening is dependent on the written score and the singer's technique. However, it is non-reducible from the recognition of the weak expression of tortured Woman.

Not limited to this section, the multi-layered assemblages of the two parallel operas are extremely intricate; however, for technical reasons they are quite distinct. One of the immediate examples of these distinctions is the identification of pitch. In contrast to Mozart's pitch-centric homophonic and serene musical language in *Zaide*, Czernowin's auditory structures in *Adama* disperse the pitch centricity with complex sounds. In a conversation conducted with Czernowin during my time at Harvard University in 2017 – 2018, she

described Adama as noisy over Zaide. We observe this parallelism generatively in the micro and macro forms of the work, as well.

I believe what makes each opera musically connected to each other is hidden behind this pitch-centricity, which extends in *Adama* towards noise and complexity. In this dissertation, I examine these structures through a close reading of pitch identity in the score and an audio-visual analysis.

In conspicuous contrast to *Zaide*'s operatic disposition of voice and orchestra, *Adama*'s musical language is an uncommon one. It is constituted by ready-made object sounds such as the sounds of a plastic bottle and stones being tossed in a bucket. The instrumental representation on the percussions with short attacks and quick decays, and voices which sing non-melodic lines instead, represent rough sounds such as physical reactions and exclamations towards the violent nature of the operatic plot and flow. All of these techniques allow both operas to exist together and still not completely merge into their own combined morphology.

We can trace a certain parallelism in the staging between *Zaide* and *Adama*. Zaide and Woman follow the same physical movements. On the stage, the ensembles are divided for the sake of creating two separate mental spatio-temporalities for *Zaide* and *Adama* in both the first edition in 2006 and the second edition in 2017. However, we should not forget that Czernowin did not

put any indication of staging on the score and, although they worked together, the staging is attributable to the stage director Claus Guth in the 2006 DVD recording. Since the staging came after the composer's score. I will not pursue this parallelism of staging here.

Although they can define the overall experience of the opera, these extra-musical aspects of the work are, more importantly, traces for me to observe the extremely distinctive auditory complexity of this composition. They further lead me to consider the compositional craft of Czernowin, and how that craft manifests on the micro-level and as a complexity that generates parallel ideas in both *Zaide* and *Adama*'s musical syntax.

Zaide/Adama, as a complete work, forces the borders of musical identity beyond temporality and cultural contexts. It is a noisy musical composition as compared to *Zaide* and the other related Mozart operas. The primary aural reason behind this feature is that Mozart operas were written based on the pitch-centricity parallel to a specific consonance system and triadic formations. These pitch identities are generative in many different levels in the work and decisive in multiple scales of musical transformations. On the other hand, *Adama*, in its dialog with *Zaide's* soundscape,[47] functions as a noise that overlays

[47] See R. Murray Schaeffer, "Soundscape," in *The Sound Studies Reader*. ed. Jonathan Sterne (London: Routledge, 2012), 99. An acoustic environment, including musical compositions, is the soundscape.

and obscures Mozart's clarity by employing various forms of action, masking, differentiating, and breaking the centricity of clearly noticeable sound identities.

Adama and *Zaide* imply a dualism in our listening. This dualism between compositional entities appears initially in the sound identification as noise and pitch. The dualism between noise and pitch appears in multilayered meanings of *Zaide/Adama*. The same analysis brings to light several significant aspects of the opera, including dualistic concepts such as: the temporal disconnectedness and connectedness of smaller and larger audible figurations as the fundamental time simultaneity[48]; dual and multiple modes of listening; historicity and memorizing versus instant perception of the work; the cultural acceptances of sound and plot and the non-acceptances of them in the opera; speaking versus singing and their communicational aspects and signification; subordination of the woman by masculine characters; subordination of individuals by the masses; power relations in the form of torture and so on; and an identity that consists of multiple identities. And, finally, the collective accumulation of these different meanings transcends the episteme of identity, complexity, and real essence of the notion of noise.

As separate operas, *Zaide* and *Adama* nonetheless coalesce in their approach to the subject of the impossible resolution of violence and trauma

[48] Douglas Kahn, "Noises of the Avant-Garde," in *The Sound Studies Reader*. ed. Jonathan Sterne (London: Routledge, 2012), 431-432.

even as they differ in their sound palette. Pitch is a fundamental entity that has this perceptive differentiation. In respect to the abstract recognition of the sound palette in the context of *Zaide*/*Adama*, *Adama* distorts the strong pitch-centricity of *Zaide* and the tonal instances in the intervallic, triadic, and melodic formations of Mozart's language. Czernowin herself describes *Adama* over *Zaide* as noisy, as mentioned above. However, noise, pitch, musical complexity and entity recognition are inherently significant in this work. Although sound itself is an indivisible phenomenon that cannot be easily separated into its components, such as noise and pitch, we can divide sound morphologies into their largest components especially for analytical purposes. This action creates its own problematic. The scope of the pitch as an entity has a function of compositional creation in *Zaide*/*Adama*. In Chapter IV, I will examine the predominant pitch structures in the opera. The universal aspects of compositional idea generation with pitch structures will be the main concern in the rest of the study.

CHAPTER II
THE COMPOSER'S MIND

Czernowin continues the four divisions of her meta-theory,[49] which I addressed in the introduction of this text, in the following descriptions:

> 1)…each composer has to learn to create a context for each piece, and to make this context apparent through the minute details of the work and its unfolding. Thus, no words attached.
> 2) …discourse between two different identities within one piece, whereby the idea that a piece has its own unified singular identity is broken.
> 3)…If the harmonic material is diverse and does not carry its own "harmonic codex" within itself, then its progression and unfolding in time could be discovered rather then prescribed.
> 4) …The more material becomes pulverized into its own "dust" or "atoms," the more it is liberated from past uses, constructs; in that state, the material unloads its past baggage, but gains more physicality as sound (as opposed to "melody" for example). [50]

Prescribed, singular, simple entities in their non-physical forms in musical creation are not the concerns of Czernowin's music or her philosophy behind the compositional process of *Zaide/Adama*. However, there are pitch appearances in *Zaide/Adama*. In this case, we can ask: why and how does a static pitch entity become present in this work?

[49] Chaya Czernowin, "The Other Tiger," 186.
[50] Chaya Czernowin, "The Other Tiger," 186-188.

Providing the answer to this question is a difficult task, and it is a question that belongs to philosophy more than anything else. I will delve into the basics of the nature of pitch as entity recognition, particularly focusing on the cognitive foundations of the sensations of pitch and the musical language, in the next chapter. However, first I will start from an examination of the natures of the material and the mind in compositional creation.

Compositional creation appears in three basic mediums that separately carry certain compatibilities and incompatibilities: the practicality [1], the syntax [2], and the *a priori* subjective experience of a musical idea [3]. These three mediums are optimized as a unified system that we call generally compositional practice in the most basic form of its definition. The description of pitch varies based on these three mediums.

In 1931, Wittgenstein wrote a brief note about the composer's idea creation that is related to my own classification of creation. He explained that:

> Pieces of music composed at the piano, on the keyboard [1], those thought out with pen on paper [2] and those just composed with imagined sounds in the head [3] must all be quite different in character and make quite different kinds of impression.[51]

[51] Ludwig Wittgenstein, *Culture and Value*, ed. G.H. Von Wright (Chicago: University of Chicago Press, 1980), 12e.

Wittgenstein's classification carries a common problematic of the scope in terms of its limits and broadness: the practicality [1] is not merely instrumental practice and the syntax [2] is not only about notational appearances.

The practicality [1] refers to the instantaneous sensory perception. It is not limited to performativity, and it is *a posteriori*.

The syntax [2] refers to the musical syntax that is a property of the human mind and the skills of reasoning; syntax transcends from the written forms, external meanings, and signs. It is independent of musical semantics and semiotics, parallel to the Chomskian tradition in linguistic studies.[52]

The *a priori* subjective experience [3] is the imagined sound in the mind without the presence of the source, the original experience.

I also classify these three mediums of compositional appearances into two systems: practicality [1] in sensory perception; the syntax [2] and *a priori* subjective experience of the sound [3] in the mind.

The second category of mind is significantly problematic in terms of compositional entity recognition and its creation. It is introspective and requires a systematic study of the nature of the composer's mind.

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[52] See Noam Chomsky, *Syntactic Structures* (The Hague: Mouton & Co., 1964); Noam Chomsky*, Aspects of the Theory of Syntax* (Cambridge: MIT Press, 1965); Noam Chomsky*, The Logical Structure of Linguistic Theory* (New York: Plenum Press, 1975).

I have no doubt that the mind is a physical being with its own components and activities. A metaphysical mind does not exist. Moreover, the mental states and neural-microphysical states are non-reductive.[53] The apperception, or the recognition of one's own awareness of the mind, is not equivalent to the objects and rules of the mind. At the same time, neither the physical attributes of the sound that is perceived via sensory perception, nor the mere physiological states of the brain are equivalent.

For this preliminary distinction of the recognition of the psychological states, the composer's mind and creation are introspective. Many composers, including Czernowin, do not require instantaneous references to imagine the actual physical presence of the sound as a source when they compose, nor are they dependent on the realization of the idea that they create. The composer's mind autonomously creates subjective experiences in their mind either on the previously known recognitions of entities or on completely new entities. These compositional ideas can appear as an intuition, not necessarily dependent on the analysis or synthesis of any predetermined or previously known forms of appearance. These imagined sounds can be applied to practicality in order to create a reproducible medium for the realization of the compositional idea. Notation is a translated reflection of this mental process. Similarly,

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[53] Derk Pereboom, *Consciousness and the Prospects of Physicalism* (New York: Oxford University Press, 2011), 123-148.

performance is an instantaneous and translated reflection of both the *a priori* subjective experience and the syntactical appearance.

The appearance of the sound in the mind is partly related to the actual attributes of the physical sound; it is not generated from the mind itself in its origin, with complete isolation from the material quality and physicality of the sound. However, this mental sound is independent of the sound's physicality as well. This is why the composer's mind is dependent on a semi-autonomous conscious dream state of the mind. This dream state, which I call the *through-the-looking glass* state, is a mental state of limited connection to one's own consciousness, either obtained analytically as decomposition or synthetically as an aggregate that transcends mere summation. This state creates entity recognition in forms of knowing as an intuition, which is the immediate knowing of the entity to some extent without dependency on an intermediary, particularly analytics.

Entity recognition through the subjective experience of a perceiving mind via introspection rather than giving a solution to understand the compositional creativity highlights a more problematic concept innate in human understanding in terms of the action of knowing the episteme of the recognized entities. One of the fundamental reasons why we do not understand

the pitch as a simple entity is derived from this intricacy of the nature of the creative mind.

Introspection is subjective and not empirical; however, it is not possible for a human composer to process compositional ideas without it. Analysis and synthesis are not possible without the mind and introspection. Unless a pre-determined processing system is utilized to generate contexts, such as via a computer, introspection is necessary. Even in the case of when a processing system apparently determines the compositional ideas, the agency and the creation of unique expressions are dependent on the introspection of the system.

Mind is dependent on the complex stimulations and the nature of bodily cells, particularly the sensory perception in collaboration with the neural system, while the sensations are not perceived as a pattern of the same knowledge of the sensations' physical features. This creates a necessity towards the consciousness of the mind through introspection.

The dual creative mind, as I define it, is a byproduct of introspection, which segregates the *a priori* subjective experience from its rules and objects of abstract thinking, so that the musical syntax and subjective experience differ from each other. In the physical presence, a similar dualism is not necessarily applicable.

An initial problem appears in the discussion of the accuracy of the knowledge and the source of that knowledge in the form of the composer's idea. This problem can be summarized as the following: 1) is the knowledge in the dream state introspectively accurate? and 2) does the source of the musical idea appear in the sensory perception or in the abstract reasoning of the composer? The first question is about the limitation of the knowledge in the dream state of the composer, which culminates in the necessary existence of the mind. The second question requires a systematics for the modalities of the composer's sensory perception and introspective idea generation. I will now briefly explain the dream state. An answer to the second question will be advanced by way of a tripartite model of compositional creation.

THE THROUGH-THE-LOOKING-GLASS STATE AND THE NECESSITY OF INTROSPECTIVE MIND

In "Epiphenomenal Qualia"[54] and "What Mary Didn't Know," Frank Jackson tells a story of a fictional character, scientist Mary, who had limited access to knowledge of the subjective experience of the actual perception of colors.[55] Mary was an expert on the neurophysiology of vision. She had learned what she

[54] Frank Jackson, "Epiphenomenal Qualia," *The Philosophical Quarterly*, Vol. 32, No. 127. (Apr., 1982): 127-136.
[55] Frank Jackson, "What Mary Didn't Know," *The Journal of Philosophy*, Vol. 83, No. 5 (May, 1986): 291-295.

knew about the world in a black and white room without the average person's experience of the sensations of colors. One day, if Mary were to be released from the room or given a color television, and if she were to be exposed to the color red for the first time in her life, upon this exposure, presumably, her previous knowledge of red would be different than her knowledge of the sensory experience of red. What she learned in the room without the physical sensations of color would be different than her knowledge of the physical sensation of color.

With this new knowledge that she learned, Mary would arguably be able to remember this knowledge of the sense of the red color even if she retured back to the black and white room. The remembrance might stay as a mere remembrance of the experience; beyond that, however, she will be able to create new knowledge out of this experience, which would not be limited to only her exposure to red for a brief moment in her life.

The knowledge of sensory perception cannot be reproduced with mere introspection. This is why the sensory experience is an initial source of the sensory knowledge. At the same time, Mary's ability to create new knowledge is not a mere remembrance of this initial exposure. Mary's mind is capable of creating new knowledge out of this first sensation. The initial sensory experience provides the subjective experience to Mary; however, this subjective

experience stays in Mary's mind. Since she initially could not know about the sensation of red, her previous knowledge of red was different than the sensation of the red. After that first experience, Mary would be able to create new ideas and knowledge as a synthesis, not necessarily referring to the initial sensation of red. This new knowledge would spring out of Mary's mind as an *a priori* subjective experience.

The composer's creativity has a similar problematic of introspection as Mary; the composer's mind is like Mary's mind, but there are nonetheless significant differences. Mary was an expert scientist who had the all the knowledge of vision, who was mainly searching for the compatibility between her sensory perception and her knowledge of the system of sensory perception. The composer is an expert on sound, but he or she does not possess all of the knowledge about sound. The mind of the composer is not limited with Mary's goal of the justification of knowledge either. The composer aims for the creation of new contexts coming from the previous knowledge of sound that he or she experienced; these new contexts can be recognized as new knowledge about the physical sound, as partly an imitation of the previously known states, and as fully original entities. This is why, rather than Mary, the composer's

mind is closer to the dream state of Alice, the protagonist in Lewis Carroll'sstories *Alice in Wonderland* and *Through the Looking-Glass.*[56]

In *Through the Looking Glass*, Alice, in her dream, notices a specular reflection on a mirror on the wall without gaining awareness of her dream state and without knowing the point at which she started dreaming. This reflection, at first, seems to her to be the reflection of the room that she inhabits within the actual world. Immediately after that, she starts to notice slight differences between the reflection of the room in the mirror and the actual room.

In this dream, Alice experiences and understands the world that she is in through her empirical experience via physical interaction with the surrounding objects and through her introspection. Alice's experience and introspection both provide her with certain knowledge of multiple realities in short temporal modalities, where actually all are in her dream and therefore originate from her brain, the physicality of her mind. Alice's mind is not metaphysical, though the dream of her mind can create a similar bodily response to her actual sensory experience of a worldly object or state can stimulate. Although the dream state is different than the actual perceptions, in the dream state, Alice is not a passive observer of the dream, which makes her different than Mary. Alice is the

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[56] See Lewis Carroll, *The Annotated Alice: Alice's Adventures in Wonderland & Through the Looking Glass* (New York: Meridian Book, 1960);
Lewis Carroll, *Alice's Adventures in Wonderland, and Through the Looking Glass* (New York: Collier MacMillan 1962).

composer of the dream and the one who perceives and creates consciousness and knowledge of the dream. She is both affecting and affected by the empirical-subjective experiential and mental knowledge outside of the dream world. This represents the most significant difference between Alice and Mary, the scientist, who makes the "blank slate" of her mind available to particular knowledge but has no active role in creating knowledge without physical experience.

The composer is like Alice – both the creator of the musical idea in the mind and dependent on the subjective experience as an outside rule. The composer has this interrelated system of the sensory perception of the actual sound and the creation in the mind.

In her dream state, Alice might realize that the dream is a dream, or she might not realize it at all. In either case, she could notice a possibility that her sensory perception, experiments, and reasoning might not be the representation of the true knowledge of the reality she is in; an outside-of-the-dream reality could exist while she continues to be suspicious about the reality in her dream.

Both the physical world and the dream realities can be mixed in an unresolvable complexity that does not clearly reveal truth: the mirror reflects the vision of the room that Alice is in, even if she is in the mirror. Her

experiences in the mirror are not completely independent of the systematics of the actual world order. Rather, they are analyzable to some extent as in the actual world. In this case, Alice will be aware of her conscious mind, without fully knowing if it is providing accurate or inaccurate knowledge to her about the dream or actual world.

Upon her awakening, Alice realizes that she was dreaming and that the realities of the dream in her mind are incompatible with the ordinary day world order that both surrounds her and provides her knowledge of the world order. However, Alice's awakening does not cancel out the internal reality of the dream state, neither Alice's knowledge about it nor her consciousness in the through-the-looking-glass state.

A similar conscious mind and mind's awareness of its own existence are critical subjects in the Cartesian mind-body problem. In the initial meditation of his *Meditations on First Philosophy*, Descartes describes a concept of a dream[57] where one is deceived about the reality represented by the dream. Descartes thinks that we could be deceived by a system created by a supremely powerful and malicious deceiver.[58] Even if we are deceived in our dream state, no matter

[57] Réne Descartes, *Meditations on First Philosophy*, vol. 2, tr. John Cuttingham (Cambridge University Press, 1984).
[58] Descartes, *Meditations on First Philosophy*, 13; First Meditation.

whether we are dreaming, deluded, or deceived, the state of truth or falsity does not prevent our mind from apperceiving its own existence.[59]

In the Cartesian concept of the dream state, the recognition of the mind's own awareness leads Descartes to exclaim "*I am, I exist,*"[60] a statement that implies that the thinking ability is subjectively the only true episteme and it is only possible with the mind. In this philosophical thought, the mind is separated from the body. There is a necessary condition that arises from this substance dualism. If reaching the real episteme is the process of understanding the reality, if the episteme and reality are compatible, and if we are able to conduct this operation via our mind, mind must be differentiated from the body as a superior being. However, this perspective disregards the significance of perception and physicalism; in this model, sensory perception is not the source of the true episteme.

Considering the hierarchical nature of this premise as a fallacy of introspection, we can see that, in reality the mind and body can be differentiated in an equal plane. The two singularities of mind and body separately stay neutral modalities. Thus, the body as the outside material and the mind as a mechanism belonging to the interiority of the subject lead to the conclusion that the episteme can create either a hierarchical or an equalized-

[59] Descartes, *Meditations on First Philosophy,* 13-23; First and Second Meditations.
[60] Descartes, *Meditations on First Philosophy*, 17; Second Meditation.

autonomous complexity out of the dualistic components of the human body, the separation of the material and the mind.

In his *Principles of Human Knowledge*, George Berkeley writes: "Their [the sensible things] *esse est percipi* nor is it possible they should have any existence, out of the minds or thinking things which perceive them."[61]

Both Descartes' and Berkeley's arguments give priority to the through-the-looking-glass state. Berkeley's knowledge appears from the person's own perception, where the physical reality is completely disregarded; in Cartesian thought, although material existence is not denied, the certainty of knowledge is ultimately dependent on the mind alone.

Both views imply the crucial role of solipsism via elimination of the material. By disregarding the solipsistic nature of these views and contextualizing the ideas in terms of a singular medium for understanding the episteme, distinct from Cartesian dualism but at the same time not excluding the processes of thinking and perceiving, we are able to expand the theory into a conditional property dualism: the material-body is separated from the perception-mind, while they remain a unified system in human understanding.

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[61] George Berkeley, *A Treatise Concerning the Principles of Human Knowledge* (Oxford: Oxford University Press, 1998), 104.

This property dualism is significant, in particular, to the entity recognitions and determinations in our knowledge of these recognitions.[62]

This property dualism appears in the through-the-looking-glass state of both Alice's and the composer's minds. Alice's experience is not a mere phantasmagoria, nor does the actual world experience she already has allow her to diversify the dream state systematics. In fact, Alice performs this processing while completely dependent on her subjective experience in her mind while dreaming. This subjective experience is physically based on Alice's sensory stimulation in her neural activity while she has no access to the actual experience due to the dormancy of sleeping.

For the composer's mind, the same problematic applies; the sensory perception cannot be separated from the mental states insofar as they are all non-reducible. At the same time, the composer has the ability to create a resemblance or completely original sound compositions in the mind without

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[62] See Patricia Smith Churchland, *Neurophilosopy* (Cambridge: MIT Press, 1986), 323-327. I think that the appearances in terms of substance dualism, the subjective experience, and the syntax recognition; the overall mental-cognitive-psychological states are conditionally related; there is not a unified knowledge that simply applicable to every instances of these modalities; a careful examination of each instance and condition is necessary. The mental states and properties that I am discussing here are recognitions only appear in terms of musical composition creation; they shouldn't be simply applied to a unified system of knowledge, conscious states and conditions.

being dependent on the presence of the sensory experience; the mind is capable of creating a sound which is completely in the mind.

The *through-the-looking-glass state* is a necessity of the introspective subjective experience in the composer's mind, where consciousness appears as a part of the mind. However, mind is not the pure source or hierarchically predominant source of the world outside of the through the looking glass state, as I mentioned in my discussion of the failure of Cartesian substance dualism. In this case, the mind and the creation in it are separated from the actual perception; however, perception and the mind are two parts of a unified human bodily system. This perspective differs from substance dualism.

KANT

Introspection is a fundamental source of the idea creation for composers; however without the sensory perception, introspection does not create ideas. Immanuel Kant's *Critique of Pure Reason* provides a systematic foundation of the correlation of the composer's mind and its recognition and creation of objects and rules in abstract thinking, as a more dependable model than the substance

dualism and the solipsism of the previous philosophical schools. It does not disregard the sensory perception.[63]

Kant's models of *a priori* and *a posteriori* cognitions, analytic and synthetic judgments, intuition, sensibility, concept, and schematism provides the foundation for my understanding of the objects and rules of the creative mind; his models are especially explanatory for the previous problems of substance dualism and the positioning of the mind.[64]

In terms of Kantian philosophy, the dualism problem is explained by the empirical cognitions (*a posteriori*) and the non-empirical cognitions (*a priori*). According to Kant, the *a priori* cognitions are the universal cognitions with an inner necessity, independent of experience.[65] They are not empirical; empirical ones cognitions are deemed *a posteriori*.[66]

How I interpret *a posteriori* is related to the sensory perception and *a priori* is related to the objects and rules of the mind. The object and rules of the mind

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[63] See Immanuel Kant*, Critique of Pure Reason*, trans. Norman Kemp Smith (London: Macmillan and Co, 1929 and 1933);
Critique of Pure Reason, trans. And ed. Paul Guyer and Allen W. Wood. (Cambridge: Cambridge University Press, 1992);
Critique of Pure Reason, trans. Werner Pluhar. (Indiana: Hackett Publishing Company, 1996).
[64] See Derk Pereboom, "Kant's Transcendental Arguments," *The Stanford Encyclopedia of Philosophy,* ed. Edward N. Zalta Spring 2018 edition, https://plato.stanford.edu/archives/spr2018/entries/kant-transcendental/.
[65] Kant, *Critique of Pure Reason*, 127, A2; 136, B1-B2.
[66] Kant, *Critique of Pure Reason*, 136, B2.

are necessarily introspective, although cognition starts with experience.[67] This is why: sensory perception is the initial source of knowledge, while the mind can create either related or autonomous knowledge out of this initial experience.

In addition to this division, Kant separates all judgments according to the relation of the subject to the predicate into two categories – what he calls analytic and synthetic judgments. In the case of analytic judgment, Kant writes "either the predicate B belongs to the subject A as something that is (covertly) contained in this concept A"[68]; in the case of synthetic judgment "B lies entirely outside the concept A, though to be sure it stands in connection with it."[69]

Kant gives the example of the proposition 7+5=12 as a synthetic judgment, through which he suggests that all arithmetic propositions are synthetic.[70] In this example, Kant addresses that the proposition here is the unification of two objects into one; the mere unification of 7 and 5 does not contain the concept of 12. The analysis of the proposition is not equal to the recognition of 12 as an object. Kant searches for the intuition of 7 and 5; he asks for the intuition that corresponds to one of these objects. He separates the 5 into its simple components with five fingers or five abstract dots. He adds

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[67] Immanuel Kant, *Critique of Pure Reason*, trans. Paul Guyer and Allen W. Wood (Cambridge: Cambridge University Press, 1992), 136, B1-B2.
[68] Kant, *Critique of Pure Reason,* 141, A7-B11.
[69] Kant, *Critique of Pure Reason,* 141, A7-B11.
[70] Kant, *Critique of Pure Reason,* 144.

two units to the object 5. With these same additive rules of processing, he adds the 7 to 5 and obtains 12, and he comments that "but not that this sum is equal to the number 12."[71] According to this argument, the sum provides the number 12, however, the analytic and synthetic judgments associated with the number 12 are not analogous to each other.

If the proposition 7+5=12 gives the objects of a superset, in Kant's exemplification, the proposition has three predominant objects, while object 1 stands for the abstract analytical smallest meaningful unit that is generative for all the objects of the set. The proposition has a collection of abstract rules, the summation of which connects all these objects in the emergence of 12. However, how we understand the 12-ness is beyond these immediate abstract rules and the analytical objects of the 12. By this definition, the 12-ness does not become explicit in terms of a superset that is a product of the summation of its subsets. As a synthetic entity that is derivative from its subsets, musical pitch has a parallel problematic in the discussion of analytic and synthetic judgments in Kantian terms. The Kantian system has a fundamental practical application to pitch as musical entity recognitions.

If we associate this proposition with the overtones of a sound that is produced on a string, although the perceived pitch of the fundamental

[71] Kant, *Critique of Pure Reason*, 144.

frequency (F0) is significantly derivable as a result of a certain proportional operation of the overtones, particularly on the predominant overtones corresponding to the spectral envelope, the perceived sound is a synthetic entity which is found in the operation of the overtones and beyond it as a synthetic entity. Besides this analysis and synthesis of the overtones and the F0 perception, the F0 is recognized as an intuition. The pitch is a synthetic entity, which provides a similar complexity as in the Kantian example.

Kant defines intuition as: "In whatever way and through whatever means a cognition may relate to objects, that through which it relates immediately to them, and at which all thought as a means is directed as an end, is intuition."[72] Intuition, in this sense, is the mind's capability of immediately knowing. The mind knows the intuition without fully consciously knowing its components analytically; in this case, analysis and synthesis are not necessary conditions of knowing as intuition. Kant explains:

> The capacity (receptivity) to acquire representations through the way in which we are affected by objects is called sensibility. Objects are therefore given to us by means of sensibility, and it alone affords us intuitions; but they thought through the understanding, and from it arise concepts. But all thought, whether straightaway (*directe*) or through a detour (*indirecte),* must ultimately be related to intuitions, thus, in our case, to sensibility, since there is not other way in which objects can be given to us.

[72] Kant, *Critique of Pure Reason*, 155-157 and 172-174, A19/B33.

The effect of an object on the capacity for representation, insofar as we are affected by it, is sensation. That intuition which is related to the object through sensation is called empirical. The undetermined object of an empirical intuition is called appearance.

I call that in the appearance, which corresponds to sensation its matter, but that which allows the manifold of appearance to be intuited as ordered in certain relations I call the form of appearance. Since that within which the sensations can alone be ordered and placed in a certain form cannot itself be in turn sensation, the matter of all appearance is only given to us a posteriori, but its form must all lie ready for it in the mind a priori, and can therefore be considered separately from all sensations.

I call all representations pure (in the transcendental sense) in which nothing is to be encountered that belongs to sensation. Accordingly the pure form of sensible intuitions in general is to be encountered in the mind a priori, wherein all of the manifold of appearance is intuited in certain relations. This pure form of sensibility itself is also called pure intuition. So if I separate from the representation of a body that which the understanding thinks about it, such as substance, force, divisibility, etc., as well as that which belongs to sensations, such as impenetrability, hardness, color, etc. something from this empirical intuitions is still left for me, namely extension and form. These belong to the pure intuitions, which occurs a priori, even without an actual object of the senses or sensation, as a mere form of sensibility in the mind.

I call a science of all principles of a priori sensibility that transcendental aesthetic. There must therefore be such a science, which constitutes the first part of the transcendental doctrine of elements, in contrast to that which contains the principles of pure thinking, and named transcendental logic.

In the transcendental aesthetic we will therefore first isolate sensibility by separating off everything that the understanding things through its concepts, so that nothing but empirical intuition remains. Second, we will then detach from the latter everything that belongs to sensation, so that nothing remains except pure intuition and the mere form of appearances, which is the only thing that sensibility can make available a priori. In this investigation it will be found that there are two pure forms of sensible intuition as principles of a priori cognition,

> namely space and time, with the assessment of which we will now be concerned.[73]

Kantian thinking provides a strong basis for a methodology for the correlation of perception and cognition in the compositional mind. According to this perspective, the *a priori* recognition of a compositional entity:

a) Has compound entities that can be obtained analytically.

b) These compound entities and relations create an abstract system of rules; I call this system "musical syntax."

c) While it refers to the application of the rules for obtaining compound entities, analysis of the compound entities creates a synthetic entity, which is not simply analogous to the rules or the product of the objects and rules.

d) Synthetic entities can be perceived intuitively, while the knowing of the entities is not merely dependent on the objects and rules; the knowing can be independent of correlations between analytic and synthetic entities.

The correlations between *a priori* analysis and synthesis in Kantian terms in musical compositional appearances are sophisticated. The analytical entities with the application of rules can create synthetic ones. The analytics of syntax,

[73] Kant, *Critique of Pure Reason*, 172-174, A19/B33-A22/B36.

though not necessarily the same thing as the synthetic entities, but at the same time, as in the example of 7+5=12, they can provide synthesis as outcome, where the synthetic entity is actually apparent, but is not necessarily associated with the analytical processes. Analytics is a form of a larger syntax towards the collection of the synthetic entities. The brain does not recognize synthetic entities purely analytically. When we think about a sound, such as the collection of sounds in a thunderstorm, multiple sensations can analytically provide us the predicate knowledge of the thunderstorm with a particular syntax-dependent schema; however, we already know the sound of the thunderstorm *a priori* as an intuition without necessarily turning to the analytics of it. So, remembering a thunderstorm sound can create even remembrance of a sensory experience of the sound in my mind, even if I just imagine the sound. I can stimulate *a priori* a neural response and mental state to recognize the thunderstorm analytically or synthetically as separate or intertwined modalities, but also intuitively as an already synthesized stimulation. This *a priori* recognition has its analogy to identifying any musical sound and imagining the action of hearing a sound with or without its causal presentation in the physicality of the sound sensations.

This brings me to a tripartite model of the compositional idea creation. Before continuing to explain the model, I will explain the nature of the simplex and simple entities. Basically, the analytical entities should not be understood as

a simple form of entities; any entity itself can be both analytic and synthetic without regard to its analytical functions, nor its qualities and states. This will be examined throughout the dissertation through the concept of *morphological invariance* (MI). Entities in their simplest forms are elusive because of the monadic nature of simple forms and the recognition of these forms. Independent of their quantitative functions, morphological invariance creates an equation of analogy between limited form complexities particularly in musical syntaxes: I call these limited representations of complexities *simplexes*.

LEIBNIZIAN FOUNDATIONS: THE CONCEPTS OF SIMPLEXITY AND MORPHOLOGICAL INVARIANCE

Leibniz has a significant influence on my study of the compositional mind. In my work, I apply Kantian principles of analytic and synthetic judgments for creating musical ideas in the mind to particularly Leibniz's monadology and his related example of the perception of the sound of the sea.[74] Leibniz's monad model is introspective; this is why it has similarity with the composer's *a priori* idea creation. The limits and boundaries of the entity recognition strongly reveal themselves when considering the monad and complexity.

[74] G.W. Leibniz, *New Essays on Human Understanding*, ed. Peter Remnant and Jonathan Bennett (Cambridge: Cambridge University Press, 1996), 54-55.

The concept of the monad additionally has two functions here: one is about the understanding of the Kantian synthetic judgment, and intuition in the mind and practicality; the other is about entity recognition and providing a tool for the derivation to analytics of the syntactical objects toward transcendence to the other mediums, such as from synthesis to another synthesis or further intuition, or vice versa.

I will briefly explain the related aspects of monadology and the other concepts will be clarified in a further examination of the mind.

The particles or substances of every possible being, which in Leibniz's thinking are termed *monads*, are indivisible and impermeable units. All existing things are made out of these unchangeable monads, which are able to create other monads. Complexities are monads and our perception of dominant monads creates the complexities. In other words, our perception takes the autonomous monads in a neutral way and signifies them in a hierarchical structure, which refers to the concept of complexity. These complexities do not represent only magnitude, size, or quantities. Monads could be anything and they are, fundamentally, about qualities. This is why a monad that is smaller than its superset is not necessarily a simpler part of the larger structure. Thus, since everything has an indivisible identity as a monad, and since some monads are understood as dominant by our perception, complexities are emancipated

from the magnitude scales and quantities.[75] A musical pitch and a tonal key center exist on different scales of magnitude. However, in this way of thinking, they also could be in a direct relationship on an equal plane and thus irreducible to a mere hierarchy. Contrary, two components that exist on the same scale, such as noise and pitch in the context of sound, could have a different monadic nature and therefore they are not necessarily in an equal relationship. Their qualities are different, although quantitatively they can look like they are equal.

Monads are impermeable and unchangeable. They do not have windows that will expand or change them.[76] However, since they also function as a component of a complexity, there are connection nodes between them.

Everything is a complexity. Every complexity of sound can appear in the form of a singularity, which is an elusive autonomous form of an entity. The relationships between sound entities in motion and in perception create the recognized realities of sound. Singularity as a simple being is not possible to comprehend analytically. As a result, noise or pitch or sound or perception or apperception lose their perceptive qualities when they are in their singular form, which is independent of sensory perception; in fact, the singular and simple

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[75] Henri Bergson, *Time and Free Will: an Essay on the Immediate Data of Consciousness*, tr. F. L. Pogson (New York: Dover Publications, 2001).
[76] G.W. Leibniz, "The Principles of Philosophy, or the Monadology," in *Discourse on Metaphysics and other essays*, trans. Daniel Garber and Roger Ariew. (Indianapolis: Hackett Publishing Company, 1996), 68.

objects of mind in their *a priori* form of syntax recognition lose their analytical appearances. This is why, in addition to the singular form of episteme, we need a method for examining these complexities and these simple recognitions. Leibniz's concept of Monadology combined with Kantian intuition and synthesis provides a preliminary method for assessing the behaviors of components and complexities introspectively. The concept of a *dominant monad* in syntactic appearance is a *simplex*; it is a limited complexity that can be articulated analytically.[77]

It is not necessary that these dominant monads, as nodes, actually appear in the material. In fact, subjective experience and thinking are the essential mechanisms through which we are able to perceive the nodes. Monads with these interconnected nodes create meaningful monadic clusters out of dominant monads. These processes provide us the simple entity recognitions of objects and rules in the mind introspectively. In practice, these clusters create the episteme that we understand via perception and mind. This system of thinking creates a possible equation of different beings in practicality; I call this recognition of equation *Morphological Invariance* (MI), which is a syntactical constant. This system is about the equation of the non-reductive entity recognitions in the mind and the practicality of the hierarchy of these entities,

[77] See Leibniz, "The Principles of Philosophy, or the Monadology," 78; sections 70 and 78.

such as dominant monads. Since A is not equal to A in monadology, and since a monad is a particle that cannot be reproduced, recognition of invariance could only be a concern of the form of appearances, which is why it is morphological. In short, MI is a particle for the simplexes without necessarily being dependent on quantitative analysis.

Pitch, as an "umbrella" term, has multiple definitions, although pitch definitions in terms of MI are significant in musical syntax. In an invariance as such, the recognized entities are optimized as equal although they are independent of their contextual meanings; incompatible mediums or systems can be optimized with MI equations.[78]

A TRIPARTITE MODEL OF COMPOSITIONAL CREATION

The tripartite model presented here is the summary of the positioning of the composer's mind for presenting the teleology between the mediums that I have mentioned throughout this chapter. This model of classification of compositional creativity has close connections to Kantian analytics and synthetics, the distinction of *a priori* and *a posteriori* judgments, and complex entity recognition in terms of simplexes and MI.

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[78] William P. Shofner, "Comparative Aspects of Pitch Perception," in *Pitch: Neural Coding and Perception*, ed. Christopher J. Plack, Andrew J. Oxenham, Richard R. Fay, and Arthur N. Popper (New York: Springer, 2005), 56-98.

One of the most crucial distinctions in the episteme appears as the sensory perception of the composer is generated from a particular instance of a sound existing or happening in real life, transcending pseudo-original knowledge in the mind. The composer's musical idea differs from these previous sensations; it creates original instances of musical compositions.

I explain this correlation between original sensation and the composer's creativity for a realization in practicality in the tripartite model of compositional creation found below.

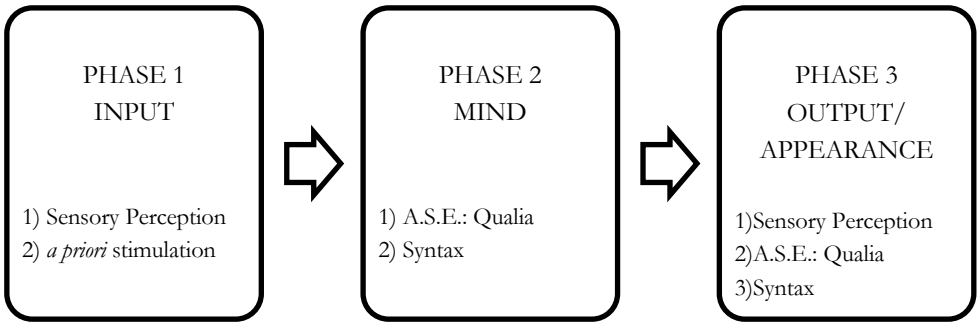

Figure 2. a Tripartite model of compositional creation

Phases 1 and 3 can be either *a priori* or *a posteriori*, or both at the same time. In the case that Phase 1 is the perception of a sound, Phase 3 is either a mental or a practical realization: Input as Sensory Perception=> Mind => Appearance.

Let's take the following situation as an example: a composer experiences a thunderstorm in a particular moment and recognizes it *a priori* either instantly or later in time. He or she can recall this exact sensory perception *a priori* without actually hearing it instantaneously. At the moment of remembrance, the mind of the composer can create contexts that are similar or dissimilar to the original instance of the perception of the thunderstorm.

The composer's mind can obtain entities, related behaviors, and emotional stimulations in this new appearance analytically and create an orchestral composition in the mind. This recognition can be *a priori* audibly known in his or her mind without a practical appearance, such as a realization in the concert, although it can also be realizable in the concert setting *a posteriori*.

Besides the analytical similarities between the original thunderstorm and the orchestral *a posteriori* appearance, the composer can synthetically create original sounds out of this primary knowledge of the thunderstorm; the original instance transcends the new instance. This new instance of the *a priori* subjective experience of the mind was necessarily translated to the rules and objects of the mind, via syntax, in order to translate the sensations of the mind to the output. This includes analytic and synthetic processes. Basically, all translation of the already synthesized entity recognition is analytical and,

therefore, is reduced from entity recognition either in the form of intuition or synthetic appearance.

The tripartite model of compositional idea creation highlights a problem: the conceivability of the *a priori* subjective experience, or the fact that the composer's recognitions of entities in his or her own mind without actually perceiving the sound stimulation do not match the mind's objects and rules. Imagining a sound that does not practically exist can be possible for the composer to some extent, but this cannot be completely analogous with the mental structures in the form of rules and objects of mind; therefore, the *a priori* subjective experience differs from the syntax. Syntax stays as a template for the *a priori* subjective experience towards reproduction *a priori* or *a posteriori*.

Syntax, in its relation to the *a priori* subjective experience in the mind, which is the actual composer's idea, is not the particular experience itself. Although separate from the subjective experience that the syntax is attached to, the syntactic objects and rules can be the idea in its own form. This is why objects and rules of the mind are recognizable via introspection as well and, together, they separate the composer's mind into 1) A priori subjective experience: Qualia and 2) Syntax.

The conceivability of qualia has a problem particularly where practicality is involved. While the composer can imagine a sound composition, the entire

knowledge of it is not fully available as the ultimate source. Therefore, syntax represents the qualia of musical ideas, and the qualia are already knowable but not fully explicit to the composer. This is why, for the sake of reproductivity in either mind or practicality, syntax and qualia are necessarily connected. However, especially in the output phase, the modalities of these idea recognitions require translation; if the goal is representing the original qualia or the original syntax in the mind, either practicality or *a priori* synthesis, or both, must necessarily change their original appearances.

The composer's success of compositional originality lies in this correlation between the incompatibilities and the translations of the modalities into compatible appearances. The function of Morphological Invariance in the equations-analogies between different entity recognitions is a tool of compatibility that I will subsequently examine. *Adama* in *Zaide*'s context has a strategy to elaborate this MI correlation of pitch collection as entity recognitions in different modalities.

CHAPTER III
GENERAL DEFINITION OF PITCH AND ITS FOUNDATIONS IN SENSORY PERCEPTION, COGNITION, AND MUSICAL SYNTAX

Pitch is the generic term used to describe a particular collection of definitions about sensory perceptions of the physical properties of molecular motions. Namely, we define these sensations as sound. Although pitch seems directly connected to physicality, as a whole or as a simple atomistic entity, pitch does not determine or directly lead us to any of the qualities of physical states, while analysis provides a limited knowledge about these states as I discussed in the previous chapter. Besides the aspects of sensory perception, the recognition of sound through human sensory experience and its analytic or synthetic predicates along with pitch are apparent in the mind as abstract entities. Actual sound perception and the recognition of pitch entity are related; however, they are neither reductive nor purely analytical. On the contrary, pitch as an atomistic entity of syntax has the potential to generate both physical and mental properties, *a priori* subjective experiences and practical appearances. Pitch, in this way, is related to musical language or, in a more accurate definition, the objects and rules of the mind as musical syntax. This definition of pitch is purely dependent neither on the facts yielded by the empirical examination of

the sensory perception nor the cognitive stimulation of the *a priori* subjective experience in the mind.

Studies in psychoacoustics focus on musical pitch perceptions, either as the molecular motion that is perceived as a tone in isolation, which is applicable to the individual tone perceptions in relation to the other tones in musical contexts, or as the human physiological and psychological responses to the attributes of complex sounds. The studies of the latter are necessary for understanding the actual nature of the complexity of sound and its sensations. However, complex sound sensations are extremely intricate and conceptual, and they do not simply provide a systematics of universals for creative compositional contexts. Sound appears as a complex sensation in the sensory perception, and a complex synthetic recognition in the *a priori* subjective experience. However, sound appears as a simple entity in the composer's syntax recognition and the composer's creative processes involving the appearances of these syntactic structures. For instance, the noise categories that Luigi Russolo invented for his compositions for *Intonarumori*[79] are, in fact, about complex sound sensations as opposed to the orchestral divisions on the

[79] See Luigi Russolo, *The Art of Noise: Futurist Manifesto 1913*, Trans. Robert Filliou (Great Bear Pamphlet by Something Else Press, 1967); and Luciano Chessa, *Luigi Russolo, Futurist: Noise, Visual Arts, and the Occult* (Berkeley: University of California Press, 2012).

syntactic pitch structures in conventional tonal music. However, in Russolo's labeling of these sound categories a collection of simple entity recognitions appears. In Russolo's case, largely because of the intricacy of the reproductivity of complex compositional ideas in practicality, in the syntactic appearances, sound entities are considered as simple entities that are generative in the modalities of idea creation and are therefore reductive.

The appearance of the musical idea in compositional practice has been focused on the analytic and synthetic systematics of tone sensations. The synthesis of simple entities into complex sounds, therefore, presents itself to the composer's mind in terms of limited collection of syntactic objects. However, these syntactic objects manifest in an "indefinite number of"[80] appearances (Phase 3), and furthermore, these appearances can be recognized in the musical mind in terms of *a priori* subjective experience.

This is why the predominant conceptual definition of pitch in musical composition is about a simple entity that generates complex structures. This form of pitch definition is determinate in the conventional musical contexts, largely including, but not limited to the tonal music repertoire.

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[80] See Chomsky, *Syntactic Structures*, 49: "Indefinite number of sentences;" *The logical Structure of Linguistic Theory*, 61: "Indefinite number of new utterances;" *Aspects of the Theory of Syntax*, v:"infinite use of finite means."

PITCH SENSATIONS

Pitch, as a sensation of tone, refers to the perception of the periodicity of complex molecular motions. Herman Helmholtz defines this periodicity in comparison to noise. He writes that, "The sensation of a musical tone is due to a rapid periodic motion of the sonorous body; the sensation of a noise to non-periodic motions."[81] Helmholtz's definition functions as an intermediary definition of pitch between the psycho-acoustical definition and the definition of pitch in musical contexts.

With its sensations as non-periodic motions and besides physiological facts, noise, along with pitch, is conceptual; the two can be recognized as synthetic objects of the mind. The sensation of noise is generally associated with the complexity of sound entities.

Noise can be defined conceptually; it can assume aesthetic qualities as in contemporary music, be informative in the context of signal transmission, and be recognized in social relations.[82] The Helmholtzian definition of noise is physiological, dependent of the aesthetical concepts. In fact, noise is a

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[81] Hermann Helmholtz, *On the Sensations of Tone* (New York: Dover Publications Inc., 1954), 8.
[82] David Novak, '*Noise,'* in: *Keywords in Sound*, ed. David Novak and Matt Skakenny (United States of America: Duke University Press, 2015), 125-138.

necessary component of signal transmission,[83] where pure tones in periodic motion coexist with noise.

The physiological facts and recognitions, the physical appearances, and the perception of sound are not always analogous. According to John R. Pierce, Gaussian white noise is a highly complex sound that is mathematically the most varied and unpredictable; compositionally, however, it is less interesting and is furthermore, monotonous to the ear.[84] As Pierce points out, physical laws and musical rules may or may not correspond.[85] The material is separated from the mind in a property dualism, where they can be correlated. This is why the perceptive features of noise and pitch, and sound in general, can be subjective.

According to Andrew Oxenham, single tone sensations can be typically divided into three categories: loudness, pitch, and timbre.[86] Loudness is dependent on multiple parameters, basically the intensity of the sound in addition to its spectral content and its duration.[87] Oxenham states that "sound intensity can have small effects" in perception.[88] Timbre mainly refers to the spectral content of a sound; two distinct sounds that have an invariable

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[83] John R. Pierce, *An Introduction to Information Theory*, 2nd revised edition, (New York: Dover Publications, 1980), 29-30, 41-54, 144-149.
[84] Pierce, *An Introduction to Information Theory*, 251.
[85] Pierce, *An Introduction to Information Theory*, 254.
[86] Andrew J. Oxenham, "The Perception of Musical Tones," in *Psychology of Music*, ed. Diana Deutsch (Amsterdam: Elsevier, 2013), 4.
[87] Oxenham, "The Perception of Musical Tones," 4.
[88] Oxenham, "The Perception of Musical Tones," 9.

loudness and pitch can be perceived. Sensations of timbre can be dependent on sound pressure and temporal characteristics.[89] Pitch, on the other hand, is associated with melody and harmony where its attributes are associated with the periodicity of the sound, similar to the definition of pitch from a Helmholtzian perspective. As Oxenham continues:

> Studies using pitch matching have generally found that harmonic complex tones are best matched with a pure-tone frequency corresponding to the F0, regardless of the spectral content of the complex tone (e.g., Patterson, 1973), which means that the detrimental effects of differing timbre may be related more to a 'distraction' effect than to a genuine change in pitch (Moore & Glasberg, 1990).[90]

Parallel to Oxenham's definition of the F0, the musical definition of pitch as a simple entity issuing from F0 perception, which is a shared context in psycho-acoustic studies, and an entity in compositional presence.

In frequency perception in musical contexts, F0 represents a hierarchical tone in isolation where it is necessarily connected to its overtone series as an entity that is separated into its components analytically. Therefore, a hierarchical dualism appears between the recognition of these multitudes and the significances of the sound entities. Pitch in this form is static,[91] not dynamic,

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[89] Oxenham, "The Perception of Musical Tones," 18.
[90] Oxenham, "The Perception of Musical Tones," 19.
[91] Alain de Cheveigné, "Pitch perception models," in *Pitch: Neural Coding and Perception* (New York: Springer, 2005), 206-207.

and one-dimensional.[92] It is also not circulatory.[93] In terms of pitch perception in this form of appearance, F0 is the primary synthetic complex entity that creates the recognition of pitch-centricity and its components are secondary simple analytical entities.

However, this hierarchy of F0 should not be understood as a domination of the F0 sensation over its analytical entities. The overall recognition of the multiple entities of sound creates a synthetic entity that is derived from sensation; however, sensation transcends analytics and synthetics as a simultaneously intuitive, indivisible, and new recognition of an entity. In this argument, I exclude the facts of conscious attention and the inattentiveness of the listener to the sound sensations. Even with full attention and conscious listening, the F0 and its corresponding pitch are not equal and, furthermore, the centricity might be concept-dependent.

Pitch, in this form of definition with tight associations to a single tone perception, is physically attached to F0, where it does not merely refer to a particular single frequency perception, but rather to an abstraction of a collection of perceptions where it selectively includes some of the aspects from

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[92] Roger N. Shepard, "Circularity in Judgments of Relative Pitch," *The Journal of the Acoustical Society of America* 36, 2346-2353 (1964);
doi: 10.1121/1.1919362.
[93] Diana Deutsch, "The Paradox of Pitch Circularity," *Acoustics Today* 6. 8-14. (2010); Doi.10.1121/1.3488670.

the perception itself. Pitch of this kind transcends from the physical properties and corresponds to mental properties. The corresponding mental property functions as a morphological invariance (MI). Therefore, rather than a product of the synthetic appearances and intuitions related to the *a priori* subjective experience, pitch is a property of musical syntax recognition.

Analysis and synthesis of the spectral content is significant to understanding this correlation and the incompatibility between F0 and spectral content, as well as their relations in the unified context of pitch. Risset and Wessel assert that:

> …the exploration of timbre by analysis and synthesis can serve several purposes: it provides insight into the physical parameters of the sound and the relevance of these parameters to the resulting timbre; it leads to simplified models that permit data reduction in the synthetic replication of the sound; and it uses models to perform transformations on the original sound, either from the point of view of classical musical processing (for instance, by independently changing pitch, duration, articulation, and loudness) or by expanding timbral resources (rearranging at will the complex variations abstracted from the analysis to obtain new and rich sounds).
>
> Exploration of timbre by analysis and synthesis is difficult but rewarding. Since the development of analysis and synthesis devices, in particular the digital computer and its descendents, it has brought a better understanding of the physical correlates of timbre as well as recipes for new musical resources.[94]

[94] Jean-Claude Risset and David L. Wessel, "Exploration of Timbre by Analysis and Synthesis," in *The Psychology of Music* ed. Diana Deutsch (New York: Academic Press,1982), 49-50.

This conclusion explicates the compositional problematic about the pitch perception: pitch does not exactly correspond to the timbral anatomy of the perceived sound. In fact, pitch is associated with a particular frequency range. Physical appearances of the pitch of the F0 and timbral highly anatomy depend on the tuning systems that is applied to the particular pitch instance or the pitch collection that is used in a particular instance where pitch defines the conventions and instances of syntaxes, rather than presents the instances of each static pitch sensation.

The spectral content, the F0, and pitch refer to simultaneous coexisting modalities of entity recognition out of the appearances of sound sensations in the mind. I will examine this entity recognition and the dependency of attention by modalities of listening in the later section of this chapter, which is about musical language. Oxenham defines the sensational representation of the coexisting modalities in terms of listening practice as the dualism of synthetic and analytic listening:

> When presented with a complex tone, such as a note on the piano or clarinet, we generally hear a single sound, with a 'global' pitch corresponding to the F0. However, under the right circumstances, we are able to 'hear out' individual partials from within a harmonic tone complex…the first five to ten harmonics can be heard in this way, depending on the F0 and the method used to measure the threshold. Listening to the global pitch and listening to the pitch of the individual

> harmonics have been termed synthetic and analytic listening, respectively.[95]

The division of the action of listening into analytic and synthetic listening has its foundations in the Helmholtzian theory of tone sensations, which is closely connected to Kantian philosophy. Helmholtz defines this problematic of pitch recognition in relation to the sensation of F0 and spectral content as:

> 1) The upper partial tones corresponding to the simple vibrations of a compound motion of the air, are perceived synthetically, even when they are not always perceived analytically.
>
> 2) But they can be made objects of analytical perception without any other help than a proper direction of attention.
>
> 3) Even in the case of their [upper partial tones] not being separately perceived, because they fuse into the whole mass of musical sound, their existence in our sensation is established by an alteration in the quality of tone, the impression of their higher pitch being characteristically marked by increased brightness and acuteness of quality.[96]

This form of synthesis is not the summation of simple entities that are creating an aggregate, as in the Kantian example of 7+5=12; the pitch and the global impression of the spectral envelope are not equal. Each entity appears as a complex of analytical and synthetic entity recognitions, along with intuitions

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[95] Andrew J. Oxenham, "The Perception of Musical Tones," in *Psychology of Music*, ed. Diana Deutsch (Amsterdam: Elsevier, 2013), 17.
[96] Hermann Helmholtz, *On the Sensations of Tone* (New York: Dover Publications Inc., 1954), 65.

and *a priori* and *a posteriori* subjective experiences. In addition to this separation of the F0 from spectral content, the F0 as a particular frequency by itself does not explain pitch in its musical appearance.

Risset and Wessel argue that pitch and "the global impression of the spectral envelope"[97] are not equal. I agree with this proposed incompatibility of the F0 and spectral content, especially in terms of the synthetic recognitions in the practicality of sensations. In a bell structure, for instance, this correlation physically does not appear as in a string oscillation. Especially with respect to the F0 perception in the inharmonic spectra in the complex sound of a bell, the F0 as a simple entity (pitch) is not equally synthesized from harmonic spectra.[98]

Veit Erlmann reflects on Helmholtz's paper *Ueber Combinations Töne* (On Combination Tones), writing that Helmholtz was considering a dualism between the auditory nerve's sensation and the psychic activity of the mind.[99] This presents a similar perspective to the property dualism between the material qualities and the mental appearances. From Helmholtz's point of view, the perception is separated from the person's own mental properties to some extent. He separates the recognitions into different mediums; therefore, the

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[97] Jean-Claude Risset and David L. Wessel, "Exploration of Timbre by Analysis and Synthesis," in *The Psychology of Music* ed. Diana Deutsch (New York: Academic Press,1982), 53.
[98] Risset and Wessel, "Exploration of Timbre by Analysis and Synthesis," 53.
[99] Veit Erlmann, *Reason and Resonance* (New York: Zone Books, 2010), 244.

term pitch might not correspond to the exact same entity recognition in the separate mediums of perception and mind.

Erlmann's propositions about Helmholtz's thought process present crucial information for the definition of pitch and this exact dichotomy of F0-overtone relations; in nature the simple sensation of *Klang* (sound) has different pitches in it than its overtones. The fusion of these overtones into a simple entity via the auditory nerve is a 'psychic activity'. The pitch of a sound as a compound entity does not require reflection. Artistic intuition and scientific knowledge, especially in terms of analytics, differ from each other. [100]

Erlmann adds that for Helmholtz "the ear decomposes the given aggregate of sensations into elementary components." [101] In this perspective, our ear is capable of reducing the components of a compound sound. This is especially true in terms of pitch. The overtones and combinational tones can be audible simultaneously with the perception of fundamental pitch; the brain can understand separate pitch entity recognitions with the particular sound sensations. On the other hand, in the case of white noise, the ear is less proficient in understanding the components.[102] Thus, pitch and noise are perceptively separate from each other. Ear and brain can decompose these

[100] Erlmann, *Reason and Resonance*, 236.
[101] Erlmann, *Reason and Resonance*, 244.
[102] Pierce, *An Introduction to Information Theory*, 251.

aggregates in periodic forms, although they do not necessarily perform the same analytical function for the noise. Furthermore, the aggregates in both the case of pitch and noise are only recognized as aggregates if tone perception is the main attention. If the overall sound experience is the focus of attention, the analytical tone entities lose their significance; either the F0 itself or the noise itself become a recognized entity as a synthetic entity or even further as an intuition. The overall sound perception and the signification in the mind do not necessarily depend on the pure tone perceptions of complex sounds.

The arithmetic representation of the decomposition process of sound has been explained and converted to simple frequency representations of sinusoidal waves via the fast Fourier transform (FFT), although the mechanical decomposition of the analytical content of the sound mass via ear and brain remains unclear.[103] Plack and Oxenham refer to this process as:

> Fourier's theorem states that any complex waveform can be produced by summing pure tones of different amplitudes, frequencies, and phases. This insight is crucial to our understanding of the function of the peripheral auditory system, which separates out (to a limited extend) the different Fourier components of a complex sound.[104]

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[103] Erlmann, *Reason and Resonance,* 235.
[104] Christopher J. Plack and Andrew J. Oxenham, "The Psychophysics of Pitch," in *Pitch: Neural Coding and Perception,* ed. Christopher J. Plack, Andrew J. Oxenham, Richard R. Fay, and Arthur N. Popper (New York: Springer, 2005), 8.

With regard to the F0 and spectral content relations, Pierre Schaeffer maintains that there is a correlation between the components of the signal analyzed into Fourier series. The ear does not hear the fundamental frequency; rather it infers the F0 by perceiving the harmonic network.[105] The concept of pitch is not identical to fundamental frequency; it is far more "complex, and plural."[106]

In the absence of the particular lower frequencies or the F0, the sensation and recognition of the entities are still audible due to cochlear distortion and resonance.[107] The physiology of the basilar membrane in terms of analytics and synthetics is closely attached to the arithmetic representation of the frequency ratios and *a priori* recognition of this correlation.[108] Contrary, the complex sound perception does not acquire this immediate correlation. Risset and Wessel write that "actually, the representation of non-periodic signals in terms of basic functions usually requires an infinite number of basic functions so that the series expansion turns into a transformation."[109] These representations, particularly in the case of complex sounds, are not completely analogous to the actual external perception of the sound.

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[105] Pierre Schaeffer*, Treatise on Musical Objects* (Oakland: University of California Press, 1966), 135-136.
[106] Schaeffer, *Treatise,* 142.
[107] Plack and Oxenham, *Pitch*, 13-14.
[108] Risset and Wessel, "Exploration of Timbre by Analysis and Synthesis," 50-52.
[109] Risset and Wessel, "Exploration of Timbre by Analysis and Synthesis," 51.

While we perceive the simpler units, we are also able to understand the complexity as a whole; a new identity is generated in connections that are, however, not necessarily related to the components. In the correlation process of the F0 and spectral content, the ear, as a representation of the auditory perception system and mind, works as an analysis tool at the same time that it functions as a synthesis tool.

Although in respect to the pure tone, the sensations and the mental representations are correlated, the physiological and psychological appearances of complex sound recognitions in the composer's mind are not equal to each other. However, as the synthesis, or the intuition, this similar correlation is not necessarily applicable to the recognition of the sound. Thus, the mind is able to create its own systematics that partly arise directly from the material, but that can also exceed its scope.

In terms of the application of Leibnizian thought to this discussion, our perception in collaboration with our mind and the sensation understands the episteme as an indivisible entity. However, episteme also appears in the form of the monadic cluster. Unlike the monads, the episteme clusters can be divided into components and units. Similarly, in terms of sound, by means of our correlative nature of perception and mind, our hearing lets us comprehend the sound waves already precipitating in the air or on another plane. Our mind

divides the sound into components and simpler units. However, it does not comprehend the complex sound, the noise, in the same way, as it understands the concept of pitch in the simple form of recognitions. Noise can arise as an aggregate, a superset of smaller pitch identities. Related to this, Leibniz believes that the sound of the sea is made out of the single sound of each wave in the sea.[110] He adds that this new aggregate hearing is different than the components. This suggests that complexity and the components might refer to a different nature of recognitions.

The accumulation of Leibnizian waves into a single sound as a monad should result in a loss of recognition of its components. The recognition of the synthetic complex sound becomes an impenetrable entity. This matches with the understanding that the analytical components of *a priori* synthetic sound recognitions are not equal to their synthetic recognitions. Furthermore, a monad by itself does not become recognizable with its components in terms of analytics; they are synthetic recognitions. Leibniz's analysis of the *a priori* sea sound in his mind, reducing the sound into analytic units and, furthermore, finding a predominant incompatibility between the analytic and synthetic recognitions of the complexity of the sea sound, sheds light on the syntactical

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[110] G.W. Leibniz, *New Essays on Human Understanding*, trans and ed. Peter Remnant and Jonathan Bennett (Glasgow: Cambridge University Press, 1996), 54-55.

problem of recognition. As a necessary condition of this correlation between the complex entity recognition and its components, the sea sound in Leibniz's cognition is an *a priori* subjective experience of the synthetic sound recognition, which initially comes from Leibniz's experience of the material quality and that is later synthesized in a particular way as he keeps his introspective analysis. In the Leibnizian model, even though the analytical recognitions have a synthetic and impenetrable nature, the division between analysis and synthesis is not a simple dualism, but rather a complex simultaneity of modalities of recognition. Thus, the hierarchies of the objects and rules of the analysis do not precisely apply to the objects and rules of the synthesis in a Leibnizian reading of Kantian property dualism.

If I apply these definitions to the discussion of pitch, we can apprehend pitch as the sound sensations of periodicity, distinct from loudness and timbre, where they can cross-modally affect each other. Pitch, furthermore, differs from its immediate existence as a property of material existence. Pitch's psychological recognition in the composer's mind has certain hierarchical differences in comparison to its physical attributes and sensations. This sort of pitch is related to human perception based on hierarchies and can thus be defined as the centricity of certain frequencies that are perceived in the relation

of F0 and its spectral content, although pitch exceeds the limits of the relation conceived as a mental entity.

Definitions of pitch, especially on the F0 dominance, refer to the term not as a self-explanatory simple entity that appears as a purely indivisible unit, such as we use in everyday definitions of musical pitch. The musical pitch in this form is a mental representation, highly dependent on the context and deterministic within a common language shared by its listeners and the composer.

This summary of the related historicity of pitch-centricity brings us to the tripartite model where the different definitions of pitch appear as a simple generative entity only in the analytics and only in the synthesis of the analytical entities via syntactic rules.

Pitch, in its sensory perceptive appearance, is dependent on empirical facts. However, phase 2 of the tripartite model of composition creates a definition of pitch as a mental entity that is independent of its sensations to some extent, while it is also not analogous to the *a priori* sensory experience.

F0 AND SPECTRAL CONTENT: THE DICHOTOMY OF CONSONANCE AND DISSONANCE AND PITCH AS MORPHOLOGICAL INVARIANCE

Consonance is historically considered as a more pleasant form of sound, where dissonance is regarded as less pleasant or overtly unpleasant. Besides this subjective preference, the theory of consonance has been considered as the key concept in this correlation between the sensation of a pitch as a tone, as a simple entity, and its appearance in musical contexts. However, as long as consonance theory provides the systematics of the structure of tone sensations in terms of F0 and spectral content, it cannot explain complex tone relations. Octave equivalence is a sensory invariance in this system of thought. As we see in both Chladni[111] and Helmholtz's[112] parallel theories on consonance, especially in terms of spectral envelope, the aggregate of the spectral content creates the timbral quality of the sensation of the F0. Its doublings in consecutive octaves are recognized as a simple synthetic entity, independent of or inter-dependent on the correlation of these components in terms of loudness and timbre; hierarchically, it refers to the primarily indivisible simple entities. This entity is the representation of pitch-centricity in consonance theory. The pitch entity generates intervals in terms of melodic formations, and

[111] Ernst Florens Friedrich Chladni, *Treatise on Acoustics*, trans. Robert T. Beyer (Switzerland: Springer, 2015).
[112] Helmholtz, *On the Sensations of Tone*, 1954.

chord structures are reductive via pitch representations in terms of frequency ratios. However, neither one of these entities nor the ratio itself necessarily presents actual physical frequency mapping of a particular F0 and its spectral envelope, even though the octave equivalence is translated and the context tightly justifies the correlation of frequency ratios. Pitch in terms of a simple entity in connection to consonance theory is based on a single dimensional definition and it is simple, although, pitch sensations are multidimensional and complex.[113]

A similar determination and sensation of the spectral content as pure simple entities also appears as a mental pitch. This creates the sensation of F0 and its octaves as a simple entity called A, and a random object in its spectral content including the F0 called B; although the physical sensation of them is $A \neq B$, in the mental representation of these objects, the entities appear as $A = B$. This means that the pitch, in its general terms, is a synthetic entity that can be obtained from its components, though they differ from each other.

In this equation, the overall consecutive double of the particular F0 frequency ratios provides the octave equivalence. Octave equivalence provides a constant to the syntax of the physical attribute of the pitch; however, it is not

[113] Roger N. Shepard, "Structural Representations of Musical Pitch," in *The Psychology of Music*, ed. Diana Deutsch (New York: Academic Press,1982), 343-385.

analogous to the recognition of the pitch as a simple entity, which leads me to consider the existence of the pitch class where pitch is equal to its mental representation.

From these definitions, we arrive at an equation, where pitch is a morphological invariance, a syntactical constant:

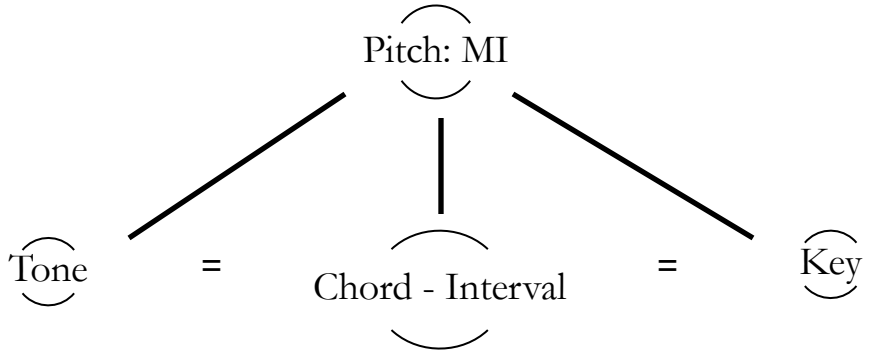

Figure 3. MI equation of pitch entities

This equation brings us to the recognition of pitch as a generative mental entity that allows composers to create central hierarchical entities, particularly in tonal music where, in practice, this sort of pitch does not correspond to the absolute analogy of material sensations or *a priori* subjective experiences in the mind.

I call this formulation the MI equation of pitch entities; it corresponds to the general definition of pitch in terms of tonal syntax. The general definition of pitch is derived from perception and cognition; however, it is a formulation for static pitch recognitions, more about the *a priori* objects and rules of the

mind and human understanding than about representing the dynamic pitch. In the general definition of pitch, the static pitch as a synthetic object is deterministic in nature, particularly in the tonal compositional contexts and in relevant analytical theories.

THE CONCEPT-DEPENDENCY OF CONSONANCE THEORY

Theoretically, the spectral content of a particular fundamental frequency that appears on a string by its oscillation is limitless if we disregard the significance of the spectral envelope. Consonance theory suggests predominant entities that are signified by both the sensory and the mental representation of the pitch.

Consonance theory explains the physical definition of pitch in terms of interval ratios. The relation of two pitches in the collection of objects in a set limited with F0 and its spectral content has been known at least since Pythagoras.[114] Ernst Florens Friedrich Chladni's theory represents a contemporaneous approach to tonality in terms of Mozart's musical language and his theory also has parallels in Helmholtz's consonance theory. In his treatise, Chladni limited consonant intervals with the numbers 1, 2, 3, 4, 5, 6, in terms of frequency ratios and their doublings. Dissonant intervals start from

[114] Shepard, "Structural Representations of Musical Pitch," 347.

the seventh.[115] This means that, if we consider the pitch material that Mozart uses as a tonal space in *Zaide* and in his other works, intervals as unisons, octaves, perfect fifths and perfect fourths, major and minor thirds are considered consonances, whereas the other intervals are taken as dissonances.

In a triadic formation, perfect consonances differ from the imperfect consonances; perfect consonants are closer to the F0 in terms of the overtone series. Therefore, unison, octave, perfect fourths, and fifths are considered as gravitationally closer to the F0 as the pitch center in tonal contexts. They become strongly associated with the fundamental frequency, its consecutive doubles, and its mental representations, in other words, to a specific pitch. Contrary, the imperfect consonances, which are in the upper level of the overtone series, merge less to this single entity recognition and determine the change to the modes via minor third and major third. In its chord formation, the major triad, according to Chladni, is more soothing to the ear than the minor triad because of the vibrations of the 4:5:6 ratio are simpler than 10:12:15.[116] As a result, imperfect consonances are also divided into hierarchical functions. Majorness is associated with close relativeness to the pitch center. In Mozart's *Zaide*, *Idomeneo*, and *Die Entführung*, perfect consonances and the major thirds are more predominantly used in each interval-chord and on the global

[115] Chladni, *Treatise on Acoustics,* 8-11.
[116] Chladni, *Treatise on Acoustics*, 11.

and local key levels than minor tonalities. Therefore, the F0 and its simpler frequency ratios are corresponding in terms of a major tonality.

When we trace Chladni's definitions in Mozart's *Zaide*, seventh overtone, the interval major second and minor seventh, and the chords dominant seventh and diminished seventh are tightly connected to the hierarchical centricity of the predominantly major triad and the later minor triad, which is secondary. The major second and minor second intervallic relations in the keys are less decisive than the triads and the associated pitch structures on degrees of I-IV-V. The seventh chords are highly dependent on these central triads.

This definition is also parallel to Richard Cohn's functional categorizations of four strategies for seventh chords: 1- Deletion, 2- Reduction as reduced to the Triadic form, 3- Substitution: melodic (here dissonance is substituted with consonance), and finally, 4- Combination.[117] In *Zaide*, seventh chords function as sonorities that are always tied to the triadic identity; they mediate between smooth key changes and emerge as a reason for/result of voice-leading maneuvers, the substitution of the main key and triad in developmental sections, and (in closer voicings) transformational trajectories

[117] Richard Cohn, *Audacious Euphony: Chromaticism and Triad's Second Nature* (Oxford: Oxford University Press, 2012), 140-168.

such as that in the *Melologo*[118] of Act I. In this case, the seventh chord or seventh partial is secondarily included into the pitch-centricity; the major and minor triads are the primary structures.

With this in mind, if a major scale of 1, 9:8, 5:4, 4:3, 3:2, 5:3, 15:8, 2[119] is taken as C major, D and B are going to be taken as the dissonant intervals. In the center of C, these three pitch entities in triadic formations belong to the rhetoric of functional harmony in terms of the I-IV-V relation.

The frequency ratios especially close to the F0 as 1:1, as a pitch center, in this context function as an invariant. However, this invariant is contextual; it is not an exact representation of the physiological presence of the analytic and synthetic recognitions of a particular pitch. The mere application of the features of consonance theory, and the related behaviors of frequencies corresponding to a particular F0 and its spectral envelope, does not provide the actual presence of the sound and composition.

Thus, the musical manifestation of consonance theory in *Zaide* represents a contextual collection of deterministic syntactic rules and hierarchies, such as segregating the functions of the minor thirds and the

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[118] See Mozart and Czernowin, *Zaide/Adama*: Fragments, 9-15; Mozart,"Zaide (Das Serail) KV 344 (336[b])," 5-11; Mozart and Schachtner, *Zaide: Oper in zwei Acten*, 5-7. The term *Melodrama* is used in the first publication in 1838 (Mozart, Schachtner). The term *Melologo* is used in the later publications.
[119] Chladni, *Treatise on Acoustics*, 8-12.

seventh chords from the primary pitch-centricity. The contextual instances of similar hierarchies in other musical examples in the music repertoire create definitive musical syntaxes, a common language between musical instances.

Milton Babbitt wrote that: "People forget that consonance and dissonance are not absolutes; they are purely contextual."[120] The biggest challenge to pitch in terms of associating consonance theory to mere facts from sensory perception comes from the historically conceptual and contingent change in the definition of musical consonance and, secondly, from the recognition of complex sounds in contexts such as noise. According to Arnold Schoenberg, the expressions 'consonance' and 'dissonance' are inadequate classifications.[121] Marc Leman thinks that consonance is not about the internal property of the sound, but instead it is about developing a psychological context of consonance dependent on the experience of similar contexts, as he claims that "the sensitivity of consonance and dissonance is learned."[122] Sensory consonance and musical consonance are different. Thus, the pure identification of consonance does not necessarily function in the same way that signification happens in the brain during and after exposure to an auditory

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[120] Milton Babbitt, *Words About Musi*c (Madison: The University of Wisconsin Press, 1987), 9-12.
[121] Arnold Schoenberg, *Theory of Harmony*, trans. Roy E Carter (Berkeley: University of California Press, 1978): 21.
[122] Marc Leman, *Music and Schema Theory: Cognitive Foundations of Systematic Musicology* (Berlin: Springer, 1995), 12.

stimulation. This is why the explanation of musical pitch in terms of consonance theory is not purely factual, but neither is it a mere analogy to the mental representation of the pitch in the composer's mind.

Consonance is not a fixed term in its historical evolution. For instance, in Fuxian species counterpoint, only unisons, thirds, fifths, sixth, and octave are consonance; the perfect fourth is considered as dissonance.[123] Pitch parallel to this definition appears in musical contexts and functions as an atomistic component of a larger structure, such as a part of a melody, a chord, an instance of sound or a structure on the score, or any other relevant musical complex entities. This definition is a common acceptance in the tonal contexts.

However, as we see according to consonance theory, the spectral content, especially its presence in the melodic and chordal formation of tonal music, and the actual frequency ratio correlation of the F0 are not analogous. Therefore, pitch as a mental object in terms of consonance theory preserves the MI equation.[124]

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[123] Johann Joseph Fux, *The Study of Counterpoint*, trans. and ed. Alfred Mann (New York: Norton and Company, 1965), 20.
[124] See James Tenney, *A History of 'Consonance' and 'Dissonance'* (New York: Excelsior Music Publishing Company, 1988), 95-103.

ON MUSICAL LISTENING AND LANGUAGE

Studies have demonstrated that pitch perception in humans and other vertebrate animals shares commonalities, such as a perceptual dimension related to tone frequency, perception of the missing fundamental, a spectral dominance region, the discrimination of rippled noises and detection of mistuned harmonics, octave generalization, and auditory streaming.[125] However, the linguistic aspects of pitch perception and their reflection to the musical appearances of pitch are quite unique in human physiology and in the culture of sound composition.

Pitch is not only a structure that appears in the musical presence of a sound. Pitch is a subject of larger problematic involving theories of hearing; it exceeds the limited tasks of musical perception.[126] Hearing should be thought of as a different action than listening; hearing refers to the physiological responses to sound, while listening is about the recognition and the transcendence of the physical sensations of sound towards the listener's body and mind. Listening further appears as a divided action in spoken language and musical language.

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[125] William P. Shofner, "Comparative Aspect of Pitch Perception," in *Pitch: Neural Coding and Perception*, ed. Christopher J. Plack, Andrew J. Oxenham, Richard R. Fay, and Arthur N. Popper (New York: Springer, 2005), 56-98.
[126] Alain de Cheveigné, "Pitch perception models," in *Pitch: Neural Coding and Perception*, ed. Christopher J. Plack et al. (New York: Springer, 2005), 221.

First of all, the physical appearance of pitch is not merely musical; it has deep associations to spoken language, where the pitch actually defines the meaning of a spoken word in tonal languages such as Thai, and functionally presents stresses and emotions in languages such as Turkish. Second, the pitch in spoken language and the pitch in musical appearances have been historically separated from each other, while the definition of the term musical has been restricted to certain cultural occasions including rituals, celebrations, gatherings, and other extraordinary communicative mediums. Therefore, even though diverse pitch perceptions are physiologically relevant, listening, the signification of pitch in spoken language, and the term musical pitch are culturally distinct.

In addition to this discussion of the linguistic perspective of sound and pitch in phonology, which is particularly relevant to tonal music, there is another conventional perspective in modern musical scholarship that explains the difference between linguistic syntax and musical syntax. The separation of these two syntaxes should be considered from the perspective of the semantic and semiotic free nature of syntactic recognitions. The musical appearance of syntactic structures is a prevailing and ongoing problematic in this discussion.

In 1962, Theodor Adorno explained the concept of the "expert"[127] listener. The expert listener is the one who is able to develop the skills to listen to and to understand the traits of musical composition, a process that Adorno calls "structural hearing":

> Its [structural hearing's] horizon is a concrete musical logic: the listener understands what he perceives as necessary, although the necessity is never literally causal. The location of this logic is technique; to one whose ear thinks along with what he hears, its several elements are promptly present as technical, and it is in technical categories that the context of meaning is essentially revealed.[128]

Adorno identifies the expert listener with the professional musician. The expert, in Adorno's words, is a person who is analytical in musical recognition and in the action of listening. Since Adorno admits that "making experts of all listeners would of course be an inhumanly utopian enterprise,"[129] he suggests a counterpart to the expert listener, which he labels as the "good listener."

> The compulsion which the work's integral form exerts upon the listener is not only incompatible with his nature, with his situation, and with the state of non- professional musical education, but with individual liberty as well. This is what bestows legitimacy on the type of the *good listener* as opposed to the expert. The good listener too hears beyond musical details, makes connections spontaneously, and judges for good reasons, not just by categories of prestige and by an arbitrary taste; but he is not,

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[127] Theodor Adorno, *Introduction to Sociology of Music*, trans. E.B. Ashton (New York: Seabury Press,1976), 4.
[128] Adorno, *Introduction to Sociology of Music,* 5.
[129] Adorno, *Introduction to Sociology of Music,* 5.

> or not fully, aware of the technical and structural implications. Having unconsciously, mastered its immanent logic, he understands music about the way we understand our own language even though virtually or wholly ignorant of its grammar and syntax.[130]

Adorno used the word "hearing" interchangeably with "listening" in his exposition of "structural hearing." The separation of the expert listener and the good listener is not clear at least in contemporary musical compositions, which do not always provide a reiteration of the previous syntaxes. The syntax moves towards a meaning in his explanations, which is why Adorno's terms in this discussion provide very broad perspectives for defining musical appearances.

However, Adorno's discussion brings us to the problematic of the syntax and synthesis; both expert listener and good listener conceive of their listening actions as mental properties separated by the compositional modalities. Both listeners are led by their ears; however, the signification of the listening action appears in their minds. In Adorno's terms, structure is a mental property. The good listener's focus is on intuition and on the synthesis; the expert, on the other hand, focuses on analysis and syntax.

The listening of musical recognition as separated from semantics has become a cornerstone idea since composer and scholar Pierre Schaeffer crafted

[130] Adorno, *Introduction to Sociology of Music,* 5.

his *Treatise on Musical Objects*.[131] Schaeffer's *Treatise* was published four years after Adorno's *Introduction to the Sociology of Music*. In distinction to Adorno's theory, Schaeffer's theory invokes the cognitive foundations of synthesis in the tradition of Kantian and Helmholtzian philosophy. Despite the differences between Schaeffer and Adorno on the subject of listening to sound, its traits and the logic and syntax behind it, both scholars address the same problematic: what is the true nature of musical syntax and the structuring of sound in the mind?

Following Schaeffer's concept of reduced listening, and related to Adorno's structural hearing, Michel Chion classifies the action of listening and contributes to the ongoing discussion with his "The Three Listening Modes."[132] Chion divides listening into: (1) Causal listening, (2) Semantic listening, and (3) Reduced listening. The first mode involves listening for the sake of the physical cause and effect of the sound. Semantic listening focuses on the meaning behind the sounds, such as in language and communication. Reduced listening, akin to Schaeffer's idea, encompasses listening to the sound's own traits, such as we do while listening to music or environmental sound; thus, the musical

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[131] See Pierre Schaeffer*, Treatise on Musical Objects* (Oakland: University of California Press, 1966).
[132] Michel Chion, "The Three Listening Modes," in *The Sound Studies Reader,* ed. Jonathan Sterne (London: Routledge, 2012), 48-53.

listening is emancipated from immediate meanings that have already been attached to a particular sound, and creates its own meaning out of this sound.

Reduced listening corresponds to the abstraction of sound sensations. It is about the mental properties, particularly the subjective experience of the sound in the mind and the recognition of the musical syntax that applies to these experiences. In contexts of complex sensations and significations, such as in artistic appearances, the (2) semantic and (3) reduced listening can be braided together, such as in the form of poetics and operatic singing. Therefore, more than physiological, this division is about the separation of the attention to listening, the ordinariness versus the extraordinariness of the listening action, and sublimation via listening.

In nature, there is no pitch in pure isolation from noise. Thinking of musical performances for instance, when a bowed string instrument is playing a certain pitch, there is also a residual noise, necessarily derived from the bow friction. Especially in tonal music, we are accustomed to listening primarily to pitch relations. The sound quality of the aggregate is also taken into consideration as a result of the overtones and the spectral envelope quality of that specific sound. However, the sounds that are creating non-periodic complexities, such as residual bow sounds or breaths in winds, are considered as unwanted noise. Interestingly, they also create the distinctive quality of the

timbre of that instrument. This illustrates how the mind is capable of creating completely different modes of listening to music, contrary to the listening to the soundscape with the intention of neutrally deciphering the actual behaviors of the sounds. This is why attention of the musical listening is different than other forms of listening, if they can even be classified; in musical contexts, the natural way of listening changes its mode. It turns into contextual listening rather than a mere representation of the material quality of the sound.

For Chion, reduced listening[133] separates the sound from its cause and meaning and, instead, focuses on the sounds' own traits. Therefore, listening to an auditory composition in a reduced listening mode makes the signification of the knowledge and differentiates the material existence of the sound, exporting it into a new entity. The previously perceived or comprehended knowledge of the object, which exists in the outside material, and its cause and meaning have been already separated and create different entities.

MUSICAL SYNTAX

Although music is not a natural language such as English, it has become common practice in music studies to borrow and adapt linguistic terms.

[133] Chion, "The Three Listening Modes," 50-52.

Musical grammar[134] and musical syntax[135] exemplify these instances. I will explain the general characteristics of musical syntax by first summarizing its similarities with linguistics syntax. Noam Chomsky defines syntax as:

> Syntax is the study of the principles and processes by which sentences are constructed in particular languages. Syntactic investigation of a given language has as its goal the construction of a grammar that can be viewed as a device of some sort for producing the sentences of the language under analysis. More generally, linguists must be concerned with the problem of determining the fundamental underlying properties of successful grammars. The ultimate outcome of these investigations should be a theory of linguistic structure in which the descriptive devices utilized in particular grammars are presented and studied abstractly, with no specific reference to particular languages. One function of this theory is to provide a general method for selecting a grammar for each language, given a corpus of sentence of this language"[136]

Syntax can be understood as the human ability to perceive the abstract rules of the system behind the grammar and utterances. This is why, either in musical instances or in natural languages, we have syntaxes. However, this does not imply that the musical syntax and the linguistic syntax are identical. As Ray Jackendoff argues, the linguistic syntax is separate from the musical system of rules. With regard to the hierarchical nature of syntactic structures such as Noun Phrase and Adjective Phrase, Jackendoff argues that "there is no musical

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[134] See Fred Lerdahl and Ray Jackendoff, *A Generative Theory of Tonal Music* (Cambridge: MIT Press, 1983), 5-6.
[135] See Adorno, *Introduction to Sociology of Music*, 5.
[136] Noam Chomsky, *Syntactic Structures* (The Hague: Mouton & Co., 19640, 11.

counterpart to these categories."[137] Nonetheless, Jackendoff contends that prolongational structures are the closest analogy to linguistic syntax in musical terms.[138] Therefore, the musical syntax is mainly dependent on hierarchies between musical structures.

It is important to note that, instead of calling them structures, I define these appearances as entity recognitions, because the musical structures are actually mental recognitions of abstract entities. For the hierarchies, I use the term pitch-centricity in tonal music, and entity recognition in its broad form, indicating that there is actually no simple innate hierarchy in the recognition of sound entities. Considered together, entity recognitions constitute the objects and the rules of the mind, which I call syntax.

The psychological appearance of the pitch-centricity problem in musical sensations and syntax is presented in terms of "*Tonal Hierarchies"* by Carol Lynne Krumhansl in her groundbreaking study *Cognitive Foundations of Pitch.*[139] Krumhansl explains the musical tone centricity in relation to the other perceptual reference points:

> A tonal context designates one particular tone as most central. The other tones all have functions specified with respect to this tone, in terms of

[137] Ray Jackendoff, "Parallels and Nonparallels Between Language And Music," *Music Perception: An Interdisciplinary Journal*, Vol. 26 No. 3, (February 2009): 200.
[138] Jackendoff, "Parallels and Nonparallels," 201.
[139] Carol L. Krumhansl, *Cognitive Foundations of Musical Pitch* (New York: Oxford University Press, 1990).

> their relatedness to the tonic a secondary reference points established by the tonic. This suggests the operation of a system of reference points in music similar to those emerging from studies in other domains. One important difference should be noted at the outset, however. Whereas other perceptual and cognitive reference points are fixed, no tone is inherently more 'tonic' than others, in contrast to, for example, certain colors that appear to be inherently more 'focal' than others.[140]

Although they are not completely separate, musical contexts, mental hierarchies, and perceptions of these hierarchies constitute different modalities. Krumhansl asserts that, "it is presumed that there is a more abstract, invariant hierarchy of stability of each tone within a complex musical sequence."[141] In this hierarchy, the abstract function of MI in terms of pitch brings us to the discussion of the musical language and ultimately to musical syntax.

First and foremost, the musical language and the linguistic forms of language are not identical although they are related. Jamshed Bharucha and Krumhansl refer to the problematic of how dissonance and consonance, in terms of tonal hierarchies and segmentation in the context of generative theory, do not refer to the same hypothetically fixed form of human understanding of language in terms of grammar. Referring to Lerdahl and Jackendoff's Generative Theory of Tonal Music, Bharucha and Krumhansl maintain that grammar is innate in music. At the same time, however, the notion of relative

[140] Krumhansl, *Cognitive Foundations of Musical Pitch,* 18.
[141] Krumhansl, *Cognitive Foundations of Musical Pitch,* 19.

consonance and dissonance, as hierarchies of stability, are culturally specific. However, the musical generativity is less convincing in comparison to its counterpart of the generativity of linguistic forms as in Chomskian generative grammar. The universality of generativity in music is ambiguous. This ambiguity allows the composers to exhibit artistic creativity. The grammar imparts the preferred hearing modes, rather than the universal structures. In the listening process, certain entities that emerge from structural analysis are more easily assimilated by the listeners. The grammar in music does not provide the universal and correct understanding of listening; the musical grammar only specifies the preferences.[142]

"Preference" in music is indeterminate, as Bharucha and Krumhansl claim[143]; historically, the acceptance of consonances and dissonances is in constant fluctuation. Parallel to the relative consonance and dissonances, contemporary music has almost nothing to do with static pitch appearances with a strict MI correlation. Recent composers focus more on the timbral qualities of sound. Tonal hierarchies or any tonal instances do not determine the actual processes of the composition in these contexts, which makes the

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[142] Jamshed Bharucha and Carol L. Krumhansl, "The representation of harmonic structure in music: Hierarchies of stability as a function of context" *Cognition* 13 (1983) 53-102. 98.
[143] Bharucha and Krumhansl, "The representation of harmonic structure in music: Hierarchies of stability as a function of context," 98.

relative consonance even more ambiguous as a generative syntactic structure in non-tonal contexts.

These hierarchies are relatively rigid and deterministic. I call such a musical syntax as a *definitive syntax*; in which distinct entity recognitions are equated with MI. In contemporary music, when the MI is not recognizable, I identify *indefinitive syntax*, which instantaneously defines its objects and rules.

Diana Deutsch and later Bharucha have considered a similar separation in tonal music. As Bharucha puts it, "a hierarchy of the string of musical events that constitutes a piece of music" is, in the first instance, an event hierarchy. Bharucha considers these hierarchies with static pitch formations such as tones and chords. He writes that "a hierarchy not of specific musical events but of event classes" constitutes a tonal hierarchy. Bharucha adds that:

> Event hierarchies describe the encoding of specific pieces of music; tonal hierarchies embody our tacit or implicit knowledge of the abstract musical structure of a culture or genre. The tone C may occur many times in a musical piece; each occurrence is a distinct musical event. But all the occurrences are instances of a class of tones (tokens of a type) denoted by 'C.'[144]

Beyond the limited definition in tonal music and pitch, event hierarchies belong to the rules of indefinitive musical syntax and tonal hierarchies belong to the

[144] J. J. Bharucha, "Event Hierarchies, Tonal Hierarchies, and Assimilation: A Reply to Deutsch and Dowling," *Journal of Experimental Psychology: General* 1984, Vol. 113, No. 3, 421-425.

rules of definitive musical syntax, where the tokens of types are the objects of the mind, such as the C as a static pitch entity recognition.

Hierarchies are not necessarily determined by the tonal contexts. As Deutsch explains, in atonal settings the hierarchy of memorability of a certain note can be enhanced by repetition.[145] She writes that "the hierarchies of prominence found in the present set of studies reflect the listeners' long-term exposure to a system that is conducive to good memory retention in a short-term situation."[146] Assigning a pitch center and knowledge of the hierarchies are crucial for the choice of the listener.[147] I believe that even in the context of non-periodic sound events, similar hierarchical entity recognitions are possible.

I contend that, beyond distinctions between periodicity and non-periodicity, recognitions of pitch instances can be hierarchical and pitch can be a part of a definitive syntax. These create an analytical correlation to an analogy of the MI equation. However, as an indefinitive syntactic object, pitch can appear as either a synthetic object or an intuition without analytical components. An event can present all of these modalities as a complexity; one particular modality may be more predominant in any given case, however. The

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[145] Diana Deutsch, "Two Issues Concerning Tonal Hierarchies: Comment on Castellano, Bharucha, and Krumhansl," *Journal of Experimental Psychology: General* (1984, Vol. 113, No. 3): 413.
[146] Diana Deutsch. "Two Issues Concerning Tonal Hierarchies," 413-414.
[147] Deutsch, "Two Issues Concerning Tonal Hierarchies," 413-416.

composer has space to create unique concepts via the correlation of the limits and the freedom afforded by these modalities.

CHAPTER IV
ANALYSIS OF PITCH-CENTRICITY IN *ZAIDE* / *ADAMA*

In this chapter, I will focus on the limits of the predominant generative MI equations of the static pitch entities in *Zaide/Adama*. I will provide additional information regarding the questions that I did not have space to answer in the previous chapters. The general scope of this chapter includes the centricity of the perfect and imperfect consonances that I explained through the Consonance Theories of Chladni and Helmholtz, Functional Harmony, Musical Set Theory, Neo-Riemannian Theory, and the Galant Schemata.[148]

STATIC PITCH AS MORPHOLOGICAL INVARIANCE IN *ZAIDE/ADAMA*

In the previous chapter, I explained how the simple numbers of frequency ratios of consonances that are close to F0 are deterministic in the recognition of pitch entities in tonal music. In addition, the fixed MI equation of these pitch entities determines the definitive syntactic rules and objects in the context of *Zaide*. One of the fundamental objects in Zaide's musical syntax is the

[148] I use archetype and schema interchangeably especially in the musical analysis, parallel to the original terminology that Gjerdingen uses. Kantian schematism differs from this usage. In Kant's theory, schema refers to a unifying system of rules in the *a priori* categories; it cannot be limited or applicable to musical archetypes, especially those derived from analytical rules. See Kant, *Critique of Pure Reason*, A 137/B176- A174 and B187, 271-277.

perfect consonance – particularly the 3:2 frequency ratio that provides the perfect fifth and its octaves. Less frequently, the 4:3 ratio gives the perfect fourth that is considered as dissonance in tonal theory; however, it is also represented as the inversion of the 3:2 in an equally divided octave. Therefore, in a situation of an MI equation, when perfect fourth is contextually attached to the perfect fifth, they both create a separate functional meaning in comparison to the 5:4 major third and 6:5 minor third as imperfect consonances.[149] Basically, the former two ratios are indeterministic in terms of tonal center in the isolated interval-key relation; the latter two ratios are deterministic about the same relation. A specific static pitch in any module of the MI equation or any sound by itself does not represent hierarchical models unless the entityenters into relation with other entities. The relationships between sound entities create contextual hierarchies and distinctive recognitions of the aural identities.

In tonal contexts, the perfect fifth and its inversion, the perfect fourth, provide us not only the distinction of the imperfect consonances, but also the generative processes in the objects of the MI equation. Perfect fifth and fourth, particularly in local and global key levels, provide the primary tonal trajectory of pitch-centricity in works such as *Zaide*. Thus, with a clear presence, the static

[149] Chladni, *Treatise on Acoustics*, 9-10.

pitch entities can be easily mapped to the cycle of fifths.[150] In terms of the cycle of fifths, if objects are considered in the limitation of the octave equivalence, each clockwise step is related to the perfect fifth as dominant, while the counterclockwise step provides the perfect fifth (perfect fourth above the central pitch in octave equivalence and the inversion of the perfect fifth) as subdominant. Therefore, the I-IV-V rhetoric can arise out of the objects in the cycle of fifths. The same limitation in the cycle of fifths creates secondary dominant relations between two non-adjacent objects of the cycle. This representation of the cycle of fifths, to some extent, is purely based on the appearances of the 3:2 and 4:3 as its octave equivalent representations. At the same time, although the objects of the cycle of fifths do not include the imperfect consonances in immediate relation to the objects of the cycle at first glance, the analogies between the different objects in different levels of the MI equation in its presence of tonal syntaxes can include immediate relations as a generative device for imperfect consonances. For example, a major or minor triad can be applicable for mapping one of the objects of this cycle as a chord, as a spectral content of a particular F0, or as a transcendental mental object that is attached to this particular object of the cycle without being actually present

[150] I use the term cycle of fifths in connection to the transformational cycles instead of circle of fifths. In my opinion, the latter term is spatial and is less explanatory of the relations.

there, even though a single object 6:5 minor third is not an immediate relation of the fifths.

However, in this form of appearance of the imperfect consonances as analytical objects of a part of a synthetic object of the cycle of fifths, the appearances of the imperfect consonances are still disconnected from the objects of the cycle of fifths as synthetic objects themselves. This shows that the cycle of fifths is the logical representation of a particular syntactic rule between certain objects that carry analogies of recognition. For instance, with the cycle of fifths, the mediant and submediant relations are not obtainable in one or two steps. Neo-Riemannian theory and the transformational cycles provide an understanding of immediate relations between the objects that do not appear in the cycle of fifths, while the MI equation is concept-dependent.

Table 2. *Zaide* Act I

	Nr.1 Coro	**Nr.2 Melologo**	**Nr.3 Aria**	**Nr.4 Aria**	**Nr.5 Duetto**	**Nr.6 Aria**	**Nr.7 Aria**	**Nr.8 Terzetto**
Cast			Zaide	Gomatz	Zaide Gomatz	Gomatz	Allazim	Zaide Gomatz Allazim
Key	Dm	Dm	GM	B♭M	E♭M	CM	FM	EM
	I	P	PRL (IV)	PR (♭III)	RL (IV)	RP	RL (IV)	LRL
	I	i	IV	♭VI	♭II	IV/IV	PR ♭III	V/V

Table 3. *Zaide* Act II

	Nr. 9 Melolog Aria	**Nr.10 Aria**	**Nr.11 Aria**	**Nr.12 Aria**	**Nr.13 Aria**	**Nr. 14 Aria**	**Nr.15 Quartetto**
Cast	Soliman	Osmin	Soliman	Zaide	Zaide	Allazim	Full Cast
Key	DM	FM	E♭M	AM	Gm	B♭M	B♭M
Key relations between Movements	I	PR ♭III	PRLR (IV/IV)	RPRP (different regions)	PLRLR ♭vii	R III	same
Relations to D Major	I	PR ♭III	♭II	V	N iv	PL	same

In these tables, I represent a hybrid model of the meaningful pitch entity relations in *Zaide* out of the objects and rules of the cycle of fifths and the transformational cycles, without separating each system. The static pitch entity and its appearances in the form of simplexes in the MI equation are deterministic in the process of understanding each object and its relations. An internal MI equation separation is inherent in Mozart's own work; this MI equation provides a distinction between the perfect consonances and the imperfect consonances inherent in the generativity of *Zaide*'s tonal utterances.

In consideration of the MI equation, therefore, the fifths refer to a variant of a static pitch entity based on the imperfect consonances. This new entity is not completely isolated from the previous pitch entities; furthermore, for any given chord, the imperfect consonances determine the tonality along with the perfect consonances.

Basically, these pitch relations can be explained by transformational cycles. However, as a broader pitch space, the cycle of fifths and the pitch transformations can be classified within the perfect and imperfect consonance qualities. A combination of these entities gives a clear understanding of the simple and complex sound sensations that both affect *Zaide's* and *Adama*'s aural entities.

Table 4. Transformational chart

Regional Relationships of the Pitch/Key Distances								
(Transf. Region 4)		Transformational Region 2				Transformational Region 4		
Transformational Region 1				Transformational Region 3				(Transf. Region 1)
(W. Region 4)	Weitzmann Region 1		Weitzmann Region 2		Weitzmann Region 3		Weitzmann Region 4	
Hexatonic Cycle 1		Hexatonic Cycle 2		Hexatonic Cycle 3		Hexatonic Cycle 4		(Hex. Cycle1)
Em	EM	D♭m	D♭M	B♭ m	A♯M	Gm	GM	(Em)
A♭m	A♭M	Fm	FM	Dm	DM	Bm	BM	(G♯m)
Cm	CM	Am	AM	F♯m	F♯M	D♯m	E♭M	(Cm)

The transformational regions are quite successful in explaining the mediant and submediant regions, in addition to the immediate relations in the Neapolitan chord regions in *Zaide*. However, in terms of keeping the perfect and imperfect

consonance separation, the cycle of fifths relation that corresponds to the I-IV-V rhetoric for immediate relations is more accurate.

It is important to note that neither the transformational cycles nor the cycle of 5ths can directly explain the major second relations, such as between D and E, even though they are quite close relations. However, through the consideration of the MI principles of pitch in its form of immediate connection in the diatonic scale, D and E are adjacent. Especially in the global key relations, this D-E adjacency can be only obtainable contextually by the consideration of the MI equation in terms of melodic formation considered together with the cycles. Both the secondary dominants and the transformations connect these objects in at least two steps in a particular direction of their cycles. In certain occasions, such as D-minor and G-major relations, the I-IV relation more directly explains the relation between the pitch entities, especially considering the multilayered MI objects in different levels of the tonal syntax. Particularly, the cadential progressions of tonal works internally maintain the dominance of the I-IV-V rhetoric. If different levels of the MI equation do not have this rhetoric, the understanding of this direct I-IV relation will be less recognizable in syntactic analysis.

Ultimately, the I-IV-V rhetoric with the transformations can explain the generative processes of object relations in the MI equation in terms of static

pitch entities in *Zaide*, such as the tones, intervals and chords, and local and global keys and their various melodic or motivic formations. Altogether, these rules and objects create the global form of *Zaide*'s syntax.

In *Zaide*, the tonal resolution and the symmetrical formal-temporal divisions of each section have a certain division in terms of the cycle of fifths and transformational cycles, as well as in the modalities of the MI equation. The symmetry and resolution are provided with entities that belong to the objects of the cycle of fifths; contrary, the developmental sections, local key progressions, and tonicizations that are connected to one another with transformational cycles that are highly dependent on chords function as pivots, with shared pitch entities between each chord or tone. These rely excessively on seventh chords. The sections of *Zaide*'s formal divisions at the local and global level represent a parallelism with the usage of the cycle of fifths, as well as related pitch centers with tonal returns, such as the ternary and rounded binary forms. Altogether, these provide definitions of musical archetypes. An example of this is the Nr. 1 Coro as a rounded binary with D major – A major – D major return, locally divided 16 Bar D major+16 Bar A major+8 Bar D major return.

The final *Quartetto* of *Zaide* is another example of the simplex tonal relations; the main key Bb major turns into the parallel minor, B-flat minor in

m. 17. This new tonality immediately follows a parallel and leading tone (PL) transformation into Gb major as a momentary passing tonality, while the F major in m. 21 stands as a *Nebenvenwardt* (N) transformation of the Bb minor. The F major in m. 28 is completely tonicized and settles as the main key until the arrival of F minor in m. 42.

A similar usage of the local and global transformations with elaborated formal structures and archetypes can be found in multiple sections of *Zaide*. On the other hand, the similar syntactic rules of *Zaide* are not applicable to *Adama* except for in terms of analytical entities as in combinatorial set relations to the full static pitch space collection of *Zaide*.

24-TONE ULTRA-CHROMATICISM

Adama's sound entities strongly emphasize indefinitive syntax, although *Adama* uses a particular strategy of analytical static pitch entities in relation to the *Zaide* pitch entities as I explicated in the previous section. I believe that *Adama*'s feature of the 'foreign body'[151] and its successful original syntax is not predominantly dependent on these analytical entities and their mere relations to the definitive tonal syntaxes; instead, they are related to the indefinitive syntax that they create. I covered the preliminaries of these indefinitive syntactic

[151] Spinola, *Cultural Conflict in Zaide/Adama DVD Booklet*, 5.

appearances in Chapters II and III. Before continuing to explain the complex and indefinitive syntactic appearances of *Adama*, I will examine the analytical static pitch entities in *Adama*'s syntax.

At first glance, the approximated ultra-chromaticism in *Adama* is the main strategy Czernowin employs to stay away from *Zaide*'s tonal syntax. *Adama*'s ultra-chromatic clusters are in a combinatorial relationship with the approximated twelve-EDO pitch collection of *Zaide*'s pitch space, via the avoidance of the imperfect consonances that represent the central MI entities in *Zaide*'s syntax. In *Adama*, all aspects of, particularly, the imperfect consonances that are deterministic of tonal centricity are avoided. This can be observed in a comparison of the pitch class sets and their interval class vectors, a clear example of which appears in the clusters of *Blut*.

Table 5. *Blut* Ultra-Chromatic set structure Transposed to 0

		m2		M2		m3		M3		P4		TT		P5		m6		M6		m7		M7	
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
C	C𝄲	C♯	D♭	D	D𝄲	D♯	E♭	E	E𝄲	F	F𝄲	F♯	G♭	G	G𝄲	G♯	A♭	A	A𝄲	A♯	B♭	B	B𝄲

As can be seen in the table above, the accumulation of the pitch class set has an emphasis on the 3:2 ratio with an additional blurriness of the quarter-tone

microtonal cluster accumulation on the 2:1 of F0 and the 3:2 of this pitch entity. The microtonal cluster avoids the major thirds that are the predominant sonority in *Zaide* and also the minor third. All together, these entities determine pitch-centricities in tonal contexts.

In order to observe this, first and foremost, the connection between the twenty-four-EDO chroma cycle and the consonant intervals, chords, and key relations must be considered together, because, as the isolation of the objects and rules in the cycle of fifths in tonal contexts disregards the transformational direct tone relations at unnatural distances, these eventually disregard the syntactic functions of the tonal indefinitive syntaxes and the actual sensory perception of the consonances. The pure isolation of the twenty-four-EDO chroma cycle also presents an unnaturally isolated logical system by disregarding the auditory sensation of its consonances.

Therefore, I adapted the twelve-tone interval class vector concept to the mod twenty-four. This provided the permutation of the abundance of certain intervals. In the chart below, the main set instance is compared in three different moments of *Blut*. In the second moment, the number 13 of the T1, F-sharp in the original set, is excluded from the cluster. In the third instance, in addition to the cluster, G is added, coming from the Nr. 13 G-minor Aria's central pitch.

Table 6. *Blut* ICV

Interval Class Vector (24- Equal octave division) of the Ultra- chromatic pitch-class clusters Blut m.37- Auftritt mm.1-5												
12 EDO Approximated interval relations (Inversion= Prime)	Minor-major 2nds zone											
					Minor-major 3rds-6ths zone							
									Perfect intervals and Tritone zone			
Exact Interval	I. ¼ Tone	II. m2nd/ M7th	III. ¼ Tone	IV. M2nd/ m7th	V. ¼ Tone	VI. m3rd/ M6th	VII. ¼ Tone	VIII. M3rd/ m6th	IX. ¼ Tone	X. P4th / P5th	XI. ¼ Tone	XII. Tritone
1) ICV without 'G'	3	1	1	1	1	0	0	1	1	1	3	2
2) ICV without 'F#' m.19	2	1	1	1	1	0	0	0	1	1	1	1
3) ICV with 'G'	4	2	1	1	1	0	0	1	2	3	4	2
Comparison	increase		same			same		same	Increase			same

The overall pitch entity collection that Czernowin employed in *Adama* only includes the imperfect consonances in special order: major third with immediate ultra-chromatic intervals that disperses the clarity of tonal center, and not the minor third as a clear sonority. The exact static pitch entities of these imperfect consonances are avoided. In the third instance above, in *Zaide*'s interconnection to *Adama* from the key G minor, major third is brought back framed with dissonances. In addition, the perceptive blurriness of the quarter-tone ultra-chromaticism also masks the identity of the clarity of these perfect consonances. Exclusion of the minor third and the cluster usage of the major third in the sonority brings a further tonal identity over the static pitch recognition of the F0 in *Adama*.

Another example of this decentricity dependent on the ultra-chromaticism is found in *Von Morgen bis Abends*, in m. 31. In comparison to *Blut*, the expanded pitch collection in the similar cluster in *Von Morgen bis Abends* masks the centricity of the major third: {1, 2, 6, 7, 8, 9, 10, 13, 14} +{11}. This time, the micro-cluster is accumulated on the tritone and the minor seconds cover the recognition of the major third and minor third and the perfect fourth and perfect fifth. Therefore, perfect and imperfect consonances sound dissonant in comparison to *Zaide*'s consonant pitch entities.

Table 7. *Von Morgen bis Abends* clusters

		m2		M2		m3		M3		P4		TT		P5		m6		M6		m7		M7	
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
C	C♯	C♯	D♭	D	D♯	D♯	E♭	E	E♯	F	F♯	F♯	G♭	G	G♯	G♯	A♭	A	A♯	A♯	B♭	B	B♯

Contrary, the major third is still closer to the F0 by means of the simple frequency ratios. Therefore, major third is still a closer identity to the pitch centricity at the micro level of the cluster, which is already masked by excessive dissonances in *Adama*. A similar usage of dispersing the centers of the consonances appears in many other Czernowin compositions; such instances

can be observed in *Anea*[152] and *Sahaf*.[153] In the initial pitch class set structure of *Sahaf*, the hexachord is made out of two symmetrical trichord sub-sets. These subsets are inversionally related. In consideration of the inversional axis, F and A-quarter-tone-sharp create an interval in between major third and perfect fourth, which prevents the appearance of a clear tonal center. From a perspective of twelve transpositions in mod-24, D-quarter-tone-sharp and A-quarter-tone-sharp, and F and B create two decentralized distinctive tritones. A similar set structure that avoids the immediate pitch-centricity appears in *Adama* as a common static pitch entity that generates larger set structures.

Table 8. *Sahaf* (2008) initial hexachord

		m2		M2		m3		M3		P4		TT		P5		m6		M6		m7		M7	
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
C	C𝄲	C♯	D𝄭	D	D𝄲	D♯	E𝄭	E	E𝄲	F	F𝄲	F♯	G𝄭	G	G𝄲	G♯	A𝄭	A	A𝄲	A♯	B𝄭	B	B𝄲

EVENT-SEGMENTATION ANALYSIS OF *ADAMA* ACT II: AUDIO – VISUAL REPRESENTATION

Zaide/Adama, as a work that intricately merges different temporalities and aesthetics, does not simply reveal its musical and sound structure on an audible

[152] Chaya Czernowin, *Anea Crystal* (Mainz: Schott, 2009).
[153] Chaya Czernowin, *Sahaf* (Mainz: Schott, 2009).

or theoretical level. Despite the complex nature of the opera, the philosophy and theoretical apparatus that I have discussed in the previous chapters provide the basis for my close reading of Czernowin's musical aesthetic, which transcends the fixed forms in *Zaide*/*Adama*.

The static pitch, and the fixed forms of syntactic objects in general, can be generative. This is why the appearances of the static pitch structures that I explained in the preceding sections are generative in the dialectic of *Zaide* and *Adama*. As I discussed in the earlier chapters, static pitch is a recognition that can be apparent in each module of the tripartite model of compositional creativity. For instance, C-ness as a static pitch entity can create the equation of C as a tone, as a chord, or a melodic instance, and as a key that can differ in its sensations. However, the MI equation of C can create all of these instances so that they are tightly connected to each other. Their limit is separated from the actual sensory perception of the sound entities and the subjective experience of the listeners and the composers.

Particularly, the general usage of static pitch is as a mental representation; it is an object of the mind and, in a narrower definition, it is an object of musical syntax recognition. Static pitch is an MI; therefore, it is particularly an analytical object of definitive musical syntax rather than merely instances of the indefinitive syntaxes. In a tonal instance, static pitch is an

object of the tonal hierarchies where it presents a limited definition of the event hierarchies and their indefinitive syntaxes.

In light of the framework I outlined above, and for the sake of switching the focus from definitive syntactic objects and rules to indefinitive syntax and thereby presenting a clear understanding of the possible groupings and behaviors of complexity in *Zaide/Adama* that do not merely contain the fixed MI equation, I provide an event-segmentation analysis on the audio-visual parameters of the foregrounding sound structures of the *Adama* sections in Act II separately. I excluded the two short *interludi* on pp. 145 and 155. In this setting, four *Adama* movements have climatic functions for both *Adama* and the *Zaide/Adama* assemblage. Particularly after *Steinigung*, they create a local pseudo-resolution toward concluding the opera.

The event-segmentation analysis is based on my personal interpretations of my auditory responses to the recording and the FFT analysis on spectrogram view via Audio Sculpt.[154] The analysis below the stereogram is inspired by the software and related article E-analysis.[155] The analysis is an approximated projection of these structures aligned with the spectrogram.

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[154] Audio Sculpt (Computer Software) v.3.4.5, Development by Charles Picasso, Registered to IRCAM 1995-2013.

[155] Pierre Couprie, "E-Analysis: developing a sound-based music analytical tool," in *Expanding the Horizon of ElectroAcoustic Music Analysis*, ed. Simon Emmerson and Leigh Landy (Cambridge University Press, Cambridge: 2016), 170-194.

The frequency band is approximately below 5000+ in order to present F0 perception and its predominant spectral content in a perceptive threshold of the speech and signal signification.[156] In terms of the *x-y*-axis, the *x-axis* is (from bottom to top) temporal representation and the *y-axis* (from down to up) is the frequency range. Accents on the line clusters represent predominantly audible spectral content that is present in the overall sound of the recording of *Zaide/Adama.*[157] Low intensity sound and background noise are disregarded in the event-segmentation analysis underneath the spectrogram view. Squares and rectangles represent chord/cluster structures. Individual voices and instrumental parts are shown with lines; instruments are shown with dashed lines. Bold lines represent percussive sounds, which appear as noises of the instruments and ready-made objects. The double line in the end represents the sectional ending, which is the connecting point of *Adama* to the *Zaide* score.

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[156] See Karl T. Kalveram, "General Introduction to Human Hearing and Speech," 271-276; Malcolm J. Crocker, "Psychoacoustics and Product Sound Quality," 805-828; Plack and Oxenham, "The Psychophysics of Pitch," 12.
[157] Chaya Czernowin*, Zaide/Adama* (Hamburg: Deutsche Grammophon GmbH,. August 2006).

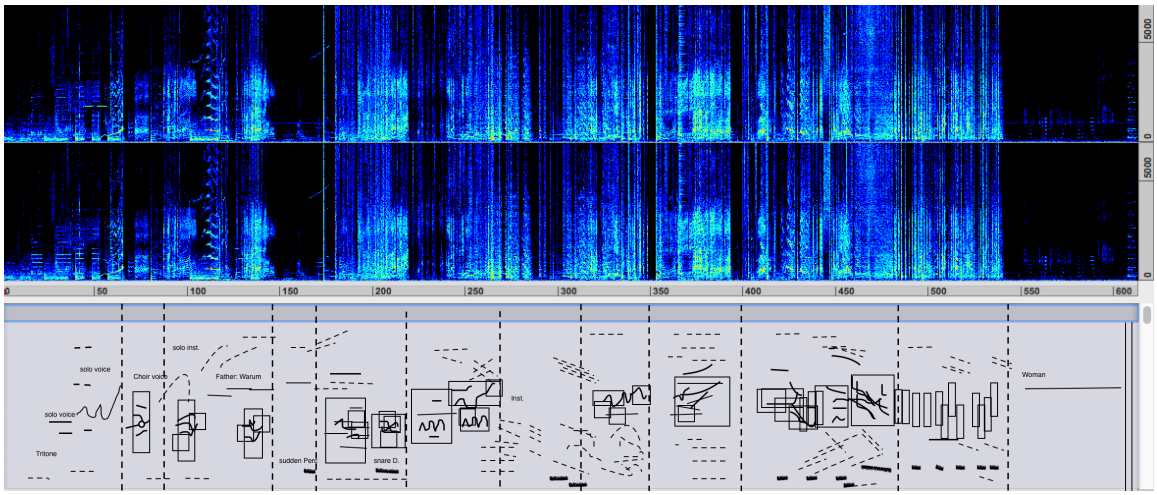

Figure 4. *Steinigung*

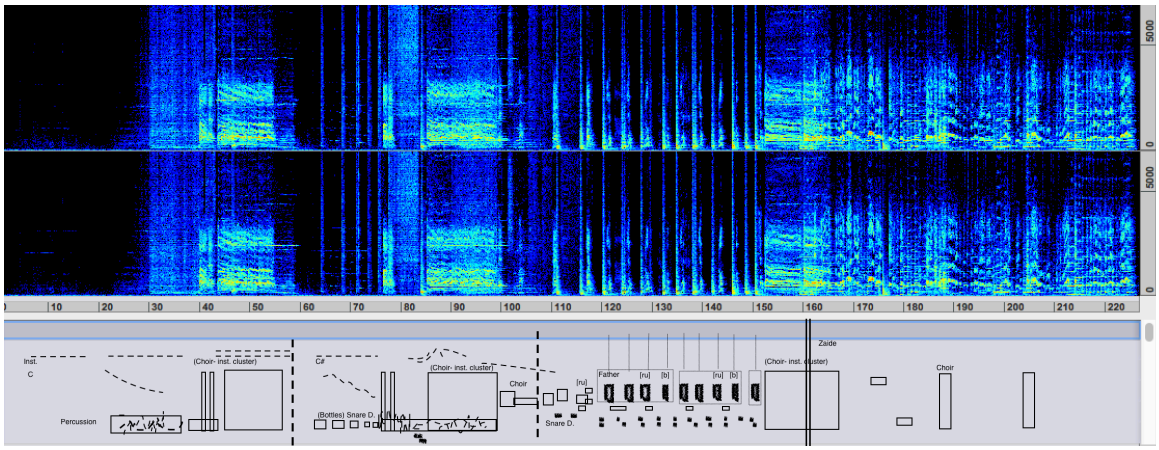

Figure 5. *Blut*

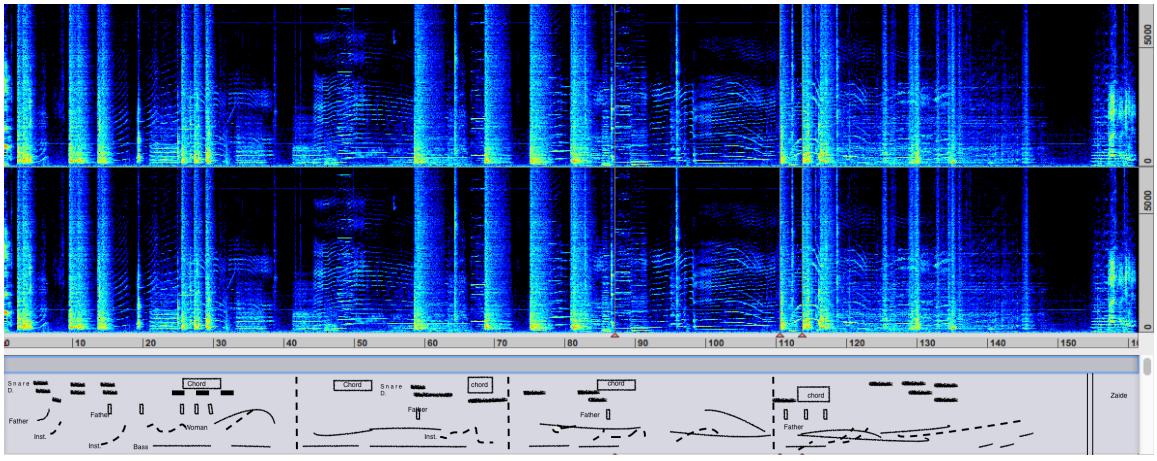

Figure 6. *Schlagen*

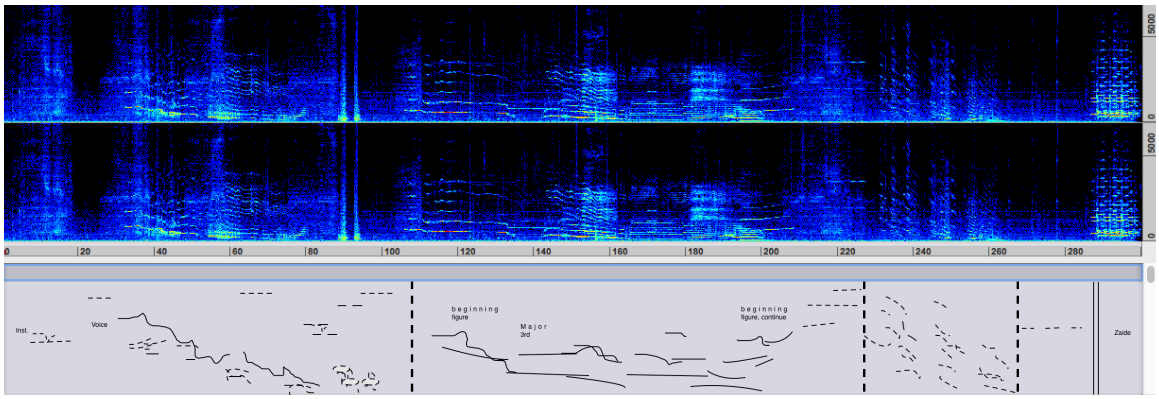

Figure 7. *Tränen*

According to the event-segmentation analysis on the comparative score-audio-visual representation of *Adama*'s Act II, *Steinigung*, as the largest and loudest section, is the climactic movement of the entire opera centered on an intense torture scene. *Steinigung* stays outside of systematic static pitch entities and patterns, presenting high levels of asymmetries and noisiness. *Blut*, *Schlagen* and *Tränen* represent pseudo-ternary structures in terms of the larger sectional sound organization. *Blut*'s last section, the cluster, merges with *Zaide*'s distinctively dramatic G-minor Aria Nr.13 'Tiger.'

Schlagen's first section is followed by two middle sections, which are closely connected. The fourth section brings the Father into the foreground as in the first section. *Tränen*, on the other hand, has a special role because it is the last *Adama* section before the final movement of the *Quartetto* of *Zaide* in Act II. It is also the only section in which two separate ensembles perform the *Adama* score together. In the other sections, *Zaide* continues on its own trajectory and

Adama appears in two forms: (1) simultaneous small-scale alienated pitch/noise interruptions to *Zaide* and (2) large-scale *Adama* movements between two *Zaide* movements, which always return to the initial key signatures of the movement via cadences or tonic prolongations.

In *Tränen*, the section of a large downward glissando of the singers is continuously followed by an arc to an upward glissando in a less connected texture made out of the simultaneities of multiple voices. The third section brings the downward glissando back within orchestral instruments without the voices. This figuration keeps the second section's quality of disconnectedness and the directionality of the first instance, but in a shorter time span. The continuous glissando in the first section is written on the score in the form that each singer takes over the glissando on the pitch where the other singer left off. It starts from the highest register of soprano (*Zaide*) in m. 6, followed in turn by contralto (Woman) and then tenor (Gomatz), finally ending in the low register of Tenor (Soliman) in m. 14. In m. 18, a response to the four-measure interruption to the instrumental entering continues with contralto (Woman) and passes to baritone (Man) in m. 22, which creates a dialog between both the *Zaide* and *Adama* cast until the end of m. 33. From this measure to the end of the section, the instruments take over the dynamic pitch continuum from the cast and connect *Tränen* to the last section of *Zaide*, Nr. 15 *Quartetto*. Up to this

point, the whole drama has been based on the violent clash between the protagonists and the antagonists in the storyline. For this reason, the continuous glissando and the merging between the ensembles could be, at first, interpreted as a resolution to the musical drama.

Longer passages are assigned to both the female singers and to the protagonists; the antagonist Soliman has fewer parts. He performs the equivocal role of ending the phrase in m. 14. The female characters, along with the male protagonists, are functionally segregated from the antagonists. Furthermore, the entire opera elaborates the character and storyline development based on the gender and the power relations of the cast. The identity and relationships of the protagonists and the antagonists were kept strongly distinct from each other. In consideration of *Zaide*'s Nr.13 Aria 'Tiger,' as one of the most expressive and crucial movements of Mozart's opera, its G-minor tonality, which is an N transformation from the D major main key, becomes an explicitly distinguished sonority. This is different than the main and related keys. Thus, on the musical level, the suppression of and the violence against the protagonists are materialized not only in the form of silencing them, but also in the accentuated expression of them. This is why the small durational proportion of Soliman in this glissando does not represent reconciliation between the opposing parties.

Tränen, on the other hand, suggests a noticeable dialogue between these polarized parties, because the entire cast and the orchestras of the two operas are merged together under *Adama*'s sound world. This feature could be read as the fulfillment of the lack of an ending to the story of *Zaide's* score. However, *Adama* is not a *Zaide* completion, as I mentioned in the first chapter; the perceptive distinction between *Zaide* and *Adama*, in terms of audible identities, remains on all levels. In contrast to the plot, the ongoing audible/musical incompatibility between the two works stays the same even in the finalization through *Tränen* to the end of the *Quartetto*.

The durational proportions in the *Adama* sections of *Blut*'s third section, *Tränen*'s third section, and *Schlagen*'s middle section, which was doubled in duration followed by the third section as a transformation of the first section, are less balanced and highly asymmetrical when compared to the internal forms of the *Zaide* sections. Similar behaviors are observable throughout the entire work, affecting the large-scale form and small-scale perceptive qualities in the relational coexistence of *Zaide* and *Adama*.

To sum up, *Zaide* represents sound entities as predominantly simple MI equations in its structures and clarity of the static pitch trajectories. Conversely, *Adama* represents sound as complexities of structures, noisiness, and obscurities in its compositional trajectories. The audible depiction of how

Mozart's score sounds without *Adama* is a soundscape of clear chord progressions, mostly in major tonalities, accompanying the singers that voice the story in expressive arias and clarities in pristine textural assemblages that aim to present the self-contained singular expressions inside of locally isolated movements. In comparison, *Adama*'s sound world presents extremely noisy sonorities that both do not come out of self-contained isolated sections and do not aim for the singularity and centricity that we encounter within *Zaide*. Instead, the sound world arises from the complex polyphonic assemblages[158] of multiple identities and their unexpected temporal apparitions; *Zaide* and *Adama* together increase the level of the assemblage and heighten complexities.

Importantly, there are limitations to how we can observe these auditory qualities from the score; the qualities become noticeable in the performance.

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[158] See Anna Lowenhaupt Tsing, *The Mushroom at the End of the World*: *On the possibility of life in capitalist ruins (*Princeton University Press, New Jersey: 2015), 23-24. Polyphonic assemblage is a term used by Tsing, inspired by the musical term especially in Baroque counterpoint as "noticing the multiple temporal rhythms and trajectories." Tsing uses the term for describing the temporalities and identities of the assemblages of mushroom colonies and further social groups; in both cases, the definition is helpful to describe the life of sub-social groups of organisms that are not the mainstream and that cannot be easily analyzed. In *Zaide/Adama*, this description perfectly explains the complication of the sound and meaning relationships, transcending from the historical and technical definition of the counterpoint and polyphony. On the *Zaide/Adama* score, the description of *Adama's* role as a 'counterpoint piece' and Spinola's description of 'layer' in the DVD booklet actually address a larger problem of assemblages of complexities, noises, and identities.

For instance, although in the score view of *Tränen* in *Adama* the starting and ending pitches of the glissando are presented clearly, this is only for practical reasons. When the glissando is listened to in the recording, no pitch identity comes into the foreground as an arrival. It is neither a resolution nor a hierarchical goal, a randomized directionality instead of a singular static pitch entity. However, the complication is larger; some of the identities, such as the quarter-tones in *Adama*, are exact. This is why the quarter-tones are in between pitch and noise.

In terms of pitch in tonal music, the dissonant sonorities create dramatic tension in relation to the consonance. Pitch is in close relation with vertical and horizontal structures, such as harmonies and melodies, chord progressions, related voice leading, and scale formations. In addition, small and large-scale forms are also closely tied to the pitch identity.

Pitch entity and pitch-centricity are the essences of tonal-dramatic forms, as a self-invariance in multiple magnitude scales of the formal structures. An example is the Sonata-allegro form, which is not merely limited to distinctive figure transformation and its reiteration. Instead, the ternary structure in sonata form is used for creating a strong dramatic rhetoric in the exposition, followed by a problematic in the development, and a resolution articulated by a double

return on the same key and the same figuration as a declaration of the end of the development via landing on both the main pitch and the initial figuration.

An example of this is can be seen in *Die Entführung*'s Overture, where we can identify a similar double return in the recapitulation on C major. C major is the prevalent sonority in the large-scale form; the C-major centricity in Act I is followed by transformations to distant tonalities in Act II. It returns back to C major and its subdominant/dominant tonalities in Act III. Pitch and form in every level becomes a complexity of clearly definable identities in Mozart's operatic works. Pitch, in this context, has a generative role as MI; pitch is in the key-chord-melody relation, in the texture and form, and, finally, in the clearly presented storyline, as a self-invariant in multiple scales in *Zaide*. With *Adama*'s simultaneous performance, this clarity is obscured. Pitch and noise become simultaneously significant, creating a relative axis of the identities. This creates multiple and cumulative meaning levels for both *Zaide* and *Adama* separately, in addition to *Zaide*/*Adama* as a complete artwork. Thus, the MI equation and the definitive syntactic function in terms of pitch dissolve into indefinitive syntactic operations.

Zaide's Aria Nr. 13 and Nr. 14 represent ternary sectional groupings as well. Five sections consecutively create a collection of ternary structures.

Considering the abundance of two-part arias[159] in *Zaide*, *Idomeneo*, and *Die Entführung*, the excessive usage of pseudo-ternary structures in the *Zaide/Adama* assemblage can either be seen as not matching Mozart's Aria forms in his three operas in a traditional sense or as a distorted commentary by Czernowin about Mozart's style. Especially considering the merging of *Adama* and *Zaide*, the end of *Blut* illustrates this deformation of the form as a figuration. However, the specific usage of 'ternary' should also be only understood as a hypothetical global resemblance between complex modalities of two-segregated compositional aesthetics.

Perceptually, the sectional differences that local tonicizations due to the tonal system of Mozart's score suggest are not valid for *Adama*. The distinction of pitch in terms of tonality and non-tonality is not limited to sectional differences; the immediate progressions are also diverse in terms of how they sound and how they are perceived. Consequently, the results of the local examination of the climatic movements in *Zaide/Adama* in light of the audio-visual analysis leads to an insight that will help to unfold the structural and perceptive thinking behind the work.

The event segmentation analysis that I conducted here is dependent on subjective experience. At the same time, event segmentation analysis helps us

[159] Linda L. Tyler, "'Zaide' in the Development of Mozart's Operatic Language," *Music & Letters*, Vol. 72, No. 2 May, 1991): 223.

to recognize larger sections and explicitly audible entities in complex sound progressions. In the case of the glissandos in *Adama*, which are already a problematic of subjective expression by their very nature, this sort of analysis shows the entity perception of a sound is not merely an aggregate of smaller entities as it is in pitch analysis. This is exceptionally problematic because the lines and glissandos are also generative in terms of accumulation of pitch entities as a summation of single instances of pitch; this definition is an analytical representation of glissandos. Contrary, the lines and glissandos here should be understood as synthetic entities, rather than by their analytical parts. In the rest of the examination, I will discuss the expression and perception of non-static pitch entities.

BEYOND THE STATIC PITCH-CENTRICITY

The glissando in *Adama* cannot be explained in terms of static pitch and fixed forms of syntactic objects. The pitch of the glissando should be categorized as a dynamic pitch.[160]

[160] Alain de Cheveigné, "Pitch perception models," in *Pitch: Neural Coding and Perception* (New York: Springer, 2005), 206-207.

Pitch perception, in its conventional appearance in tonal music, is static rather than dynamic. Cheveigné addresses this division in the following passage:

> Aristoxenos distinguished the stationarity of a musical note, with a pitch from deep to high, from the continuity of the spoken voice or transitions between notes, with qualities of tension or relaxation. … It is indeed conceivable that dynamic pitch is perceived different from static pitch.[161]

Cheveigné adds that, in the case of dynamic pitch, such as the slide and the glissando that appear in *Adama*'s context, frequency sampling provides a limited access to the perceived dynamic pitch.[162] The material and mental properties of dynamic pitch and static pitch are different. Furthermore, the function of dynamic pitch in *Adama* is a musical response to the plot.

The female figure is subordinated in the parallel narratives of *Zaide* and *Adama*. Significantly, the only main female characters in both operas are Zaide and Woman. In the 2017 version of *Zaide*/*Adama*, we observe additional female characters in the choir and more female silent figures as compared to the 2006 DVD performance; however, the number of male cast members remains significantly higher overall.

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[161] Alain de Cheveigné, "Pitch Perception Models," in *Pitch: Neural Coding and Perception* (New York: Springer, 2005), 206-207.
[162] Cheveigné, "Pitch Perception Models," 207.

With regard to the musical structures, we also observe a similar diversity of dominations and subordinations, as well as gender-related compositional decisions. In *Schlagen* (Strike), for instance, on p. 229, the Father figure sings the vowels '*j*' -> 'jad'-> 'bu'->'ru', which easily come to the foreground against the other singers due to the quick attack on the sound of 'j'. Meanwhile, the Woman sings a more naïve-sounding downward glissando at this point. In this section, especially, the Woman has a tendency to sing glissando downward while the Father interrupts with sharp attacks and, interestingly, the Man follows with an upward glissando. The Woman fluctuates between pitches, whereas Man has a more stable line. In this movement, the beginning of the Woman's part starts with almost a full register downward glissando. Since the voices are used as untraditional singing in *Adama*, they sound like ordinary life vocal expressions; here, they literally sound like physical groaning. On p. 230 m.6, Woman's glissando has the quality of a natural decrescendo due to her reaching an E in the sub-voice register from a middle register of E with a naturally achieved ***p***.

This glissando might be considered as an unconventional and arbitrarily chosen technique for *Adama*'s abstract music. However, in my opinion, by considering many surrounding meanings along with the physicality and ordinary day life themes, cultural codes, and references in *Adama*, and by

keeping in mind the importance of the morphological invariants coming from intertwined relations, this glissando motive is an artistic representation of the decreasing strength of the individual as a result of her ongoing torture, and it is also related to the subordination of the female character in an expanded way. At this point, the Man still does not belong to the group of power holders; this is why he shares elements of the same glissando and is regarded as also subordinate and as a sub-cultural victim. On the other hand, he still has a more rising glissando, and freer directionality and dynamic contour than Woman. The Man is successfully represented in a state in between feminine subordination and masculine domination. Still, we should keep in mind that his texture is closer to Woman with regard to the continuation and layerization together with her.

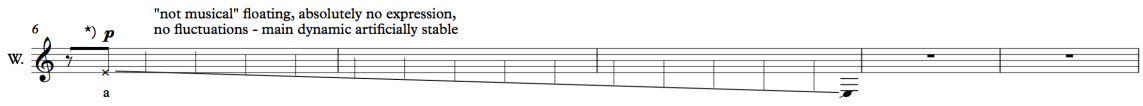

Figure 8. Woman's downward glissando, *Schlagen,* p. 230, mm. 6-10

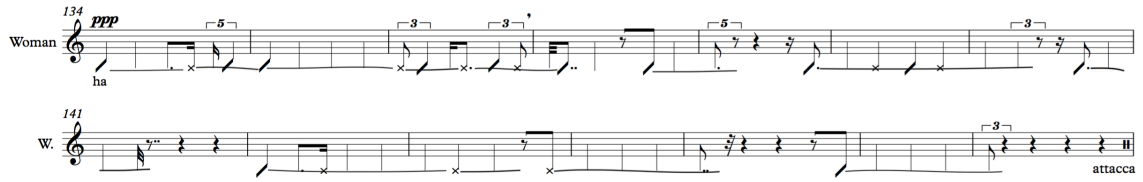

Figure 9. Woman's line*, Steinigung* Ending, p. 203, mm. 134-147

The first systematic antecedent to this downward glissando that is particularly elaborated in the second Act is located in the duet *Erde, Blut, Mutter* by the Man and Woman: it first enters in the beginning of the movement with impulses and transforms into the glissando in p. 103 m. 87. The dynamic quality of this follows a fortissisimo and gradually becomes a forte. The positioning of this one is the last *Adama* section and the second one from the end of Act I, right before the last section *Terzette* of *Zaide*. If we consider the frequent appearances of this musical element in Act II, which is completely based on torture scenes, and its gradually decreasing dynamic quality, the downward glissando constitutes a very significant musical object associated with femininity.

If we return back to the beginning of *Schlagen*, after the first full octave downward glissando, Woman's up and down glissandos never repeat a similar pattern and directionality through the entire movement. Moreover, when we look at Act I, pre-*Erde* sections, we see that Woman's parts have more flexibility and freer contour than a mere downward glissando. In *Von Morgen bis Abends,* for instance, the Woman in mm. 41-44 pp. 24-25 has an upward glissando, which is between pitches E to B, F to octave above E and D-quarter-tone-flat, that culminates in standing on the C sharp between mm. 51-52. On p. 52 m. 22, the Woman sings an upward glissando, which is aiming towards E. The *Mund* duet between Man and Woman found on p. 48 is another

example of this flexible singing, which is a representation of a freer Woman, in my opinion.

We observe a similar idea of the downward glissando in the *Tränen* on p. 242, which comes right after Allazim's aria Nr. 14 in *Zaide*. In *Tränen,* both ensembles come together for the first time in the full opera and the protagonists of both operas also sing together. In m. 6, Zaide sings an unstable glissando from A that goes slightly up to the A-quarter-tone sharp; which is very subtle, and that is why I do not count it as a similar object as the other upward glissandos – almost like a shaky voice, the shakiness apparently a reaction to her cruel torture by the Sultan Soliman. This glissando ends in m. 9 on a D-quarter-tone-sharp, more than an octave lower than the starting A. This is almost the full register that a Soprano can sing with a naturally achieved decrescendo and ***p*** arrival; it creates the representation of groaning and of becoming weaker or physically and mentally depleted, which I discussed regarding Woman's part on p. 230 m. 6. The directionality of this glissando, and the similar registral and dynamic quality of this figure, is the exact identical compositional idea of the previous glissandos in the Woman's lines throughout *Schlagen* and many other movements. Interestingly, Zaide, for the first time in the entire opera, stops singing a clearly tonal and melodic line and instead sings elements of *Adama*. Here she sings as a desperate groaning woman.

Simultaneously, the Woman starts the same D-quarter-tone-sharp of Zaide's decrescendo to *niente*; the Woman starts by a crescendo from *niente* and completes the line in m. 12. As a result, both singers sound as one.

Numerous composers have used this orchestration technique for centuries as a continuation of the various instruments, which successfully binds individual instrumental groups. We encounter a similar technique in *Zaide,* as well. On p. 248, mm. 21 and 22, the modal scales on the violin II are continued with violin I by doubling the B, which creates a smooth connection between lines and also combines them. Here, in the singers' case, the same homogeneity is achieved; both female voices become as one, such as if it is a single woman who has a large registral capability.

Thus, both women, from different times and worlds, become, in a single moment, people with a shared destiny. They not only share a similar narrative juxtaposition based on the materialization and punishment of a subordinate woman figure, but they also share the same physical reaction. Therefore, the shift in the character and musical consistency creates a sudden collapse of the consistency and an instant awareness of the universal problem of cultural, political, and gender-related conflicts across time.

In *Tränen*, the entire ensemble also sings a downward glissando, contrary to the strong layerization and oppositions of the characters as antagonists and

protagonists before. This could be taken as a narrative reaction to the realization of the cruelty and shame of the executioners, which we observe in Allazim's aria in the previous movement. Allazim was reminding the executioners of human rights and brotherhoods, as well as accusing them of wrongdoing. However, we could still say that there is a subtle distinction in the micro-musical level of the one who was tortured in the plot and the one who carried out the torture.

The characters who are subordinated and tortured sing more dramatically exaggerated glissandos, which are mostly much larger than a single octave and are almost the complete register of the voice as I highlighted in characters Zaide and Woman's continuation of their lines in mm. 6-12. When the protagonists are singing together, most of the time either the Man, Woman, Gomatz, or Zaide start and close the small level sections. The Father and Soliman have secondary functions, whether starting later or ending earlier. They also become a middle voice in the clusters. As an example, in m. 23, Man and Father sing almost the same downward glissando; however, Man starts earlier and from a minor second and a fifty-cent higher, with a F-quarter-tone-sharp higher pitch, whereas the Father starts almost in a unison with a 'beating.' Father immediately sings a downward glissando and, in m. 26, he stops; the

Man completes the layer by a glissando that spreads to a larger register. Thus, the Man's line sounds longer and has more variety in pitch.

Meanwhile, in another level, in m. 24, both female singers, Zaide and Woman, initiate the layer in turn. Gomatz and Zaide end this layer in the beginning of m. 28. If we focus on the positioning of the voices, the highest and lowest pitches of the clusters/chords, as well as the starts and the endings, belong to the protagonists. Osmin and Soliman are, especially, positioned in the middle of these voices. Allazim is singing D. In relation to the initial pitch G, the Woman with Allazim creates a perfect fifth. When we look at the relations between Gomatz, Soliman, and Osmin, we encounter a different scenario; Gomatz presents the F-quarter-tone-flat, Soliman the G-quarter-tone-flat, and Osmin the G natural, which is a very close quarter-tone cluster and a contrast to the perfect fifth, while Zaide sings the E-quarter-tone-flat, which we can observe as the strong clash between these characters on the micro-clustral and pitch positioning level. Father and Soliman, however, stay with highly limited glissandos with quarter-tones, a contextual dissonance to the representation of the criminals.

During this merge and in the techniques in *Tränen*, the characters that we are accustomed to hearing in Mozart's music become a part of Czernowin' s music. As I explicated before, this technique anticipates a paradigm shift but, at

the same time, still keeps the quality of morphological invariance on one hand and the destruction of the character consistency on the other. Since the beginning of the performance, *Adama* acts as a parallel work to *Zaide*. At the same time, both operas follow their own trajectories. However, *Adama* also includes the interruptions to *Zaide* that I previously discussed. This is why *Adama* dominates the full scene when the full cast and two ensembles are merged to perform *Adama*. The consistency of Mozart's characters collapses. At the same time, the invariance of the dominating as opposed to the dominated still does not disappear. This action is one of the most significant reasons why we do not hear *Adama* as a complementary work, but instead as an autonomous agent that culminates in the perception of a *Zaide*/*Adama* assemblage and not as *Zaide* and/or/versus *Adama*.

Table 9. Trajectory of the downward glissando in Woman's part in *Schlagen*

mm.6-8	***p*** E to E octave below, undertone arrival and representation of the stoned woman.
mm.17-20	m.17-19, E-F downward gliss., m.19 F-A upward gliss., and m. 20 F# immediate gliss. (quarter note long) to the F#.
mm.22-23	A-C♯ downward gliss. m.24 C♯ upward gliss. to D, and m.25 downward gliss. to B♮
mm.26-27	Downward gliss. from A to E, m.28-30 upward gliss. from E to G♮ downward gliss. to E♮ and upward gliss. to F and immediately to the F♯

Besides the narrative aspects and the parallelism between the extra-musical elements *in Zaide/Adama's* music, remembrance is a key concept in *Zaide/Adama*'s musical syntax.

The sonority initiated in mm. 52-54, in *Von Morgen bis Abends* on p. 26, in the violin and bowed crotales enters again in *Zaide* Auftritt III, Nr. 3 Aria on p. 34, and later on p. 36. However, this exact sound entity does not stay as a definitive syntactic and stable entity; rather, it is isolated as an interrupting function to *Zaide*, and it transforms into interruptions with timpani with super ball mallets (i.e. p. 147, in Nr. 10 Aria Auftritt III, p. 136 Auftritt I, p. 139 Nr. 9 Melologo ed Aria, Double Bass percussion and bass trombone on p. 128). This indefinitive syntactic compositional strategy makes *Adama* progressively change and elaborate the compositional ideas, instead of solidifying the new musical syntax that *Adama* generates. Similarly, the bass trombone on p. 128 is an interrupting foreign entity to *Zaide*, a variant of the previous sound formations of *Adama.*

The impulses of p. 16 *Von Morgan bis Abends* appear in the *Versuchen* p. 46 entrance, and further develops with drunken rhythm in mm. 15-16 etc. This happens in between two *Zaide* arias: Nr. 3 on p. 27 and Nr. 4 on p. 38, and an *Adama* remain on the same prolongation on p. 37.

On p. 143, similar entities appear and, on p. 145, bass trombone continues these similar elements. The other examples of this idea include: p. 149, Nr. 10 Aria Auftritt III bass trombone and p. 152 Double Bass, Percussion, and Bass trombone. In the last developed form of this interrupting idea, the idea finally brings a completely unpitched bucket with stones on p. 154, Nr. 10 Aria. This last appearance of the interruption idea by alienated sounds to *Zaide* is a metamorphosis of the initial entity. Where it is emancipated from the static or dynamic pitch entities, it is definable as noise.

The bucket with stones is a physical embodiment of the *Steinigung* on p. 173. With its all-climatic function and its intricate sound palette, the bucket is intertwined with the nature of stoning, a form of violent punishment with an extremely complex history that has often been applied in cases of adultery.[163]

This interruptive entity continues in Woman's lines, with greater intricacy, such as in Auftritt V Nr. 12 Aria p. 204. In this line, the Woman after stoning is not merely singing; the line is a representation of the groaning of a stoned and barely surviving Woman, her pain and agony evident, as I examined previously in connection to the analysis of the narrative levels.

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[163] In conventional and contemporary contexts of the *sheri'a* and the criminal laws in moderate Islamism, all forms of sexual relationship between individuals outside of lawful marriage has been considered as *zina*, or adultery, and as a unlawful activity; that has been applied to numerous lawsuits, and still represents a controversial subject in many countries including, but not limited to Saudi Arabia, India, Brunei, Turkey, and so on.

In *Tränen*, this line turns into a shared expression for Zaide and Woman. Later on, the male characters join in continuous glissando. Should we consider this as a true reconciliation?

The trauma cannot be resolved. While *Zaide/Adama* presents this problematic in all of its intricacy, the subjective experience of the trauma is successfully generated in, particularly, the *Adama* context. Static pitch entities can be generative for larger meaningful archetypes that are the bases of the meaningful larger formal divisions[164] in *Zaide*'s musical language. For instance, Nr. 2 *Melologo* represents a very complex form in comparison to the previous section Nr.1 *Coro*, and with predominant galant archetypes. This section is different than the Nr. 1 *Coro*, which has a symmetric form and is balanced and quite directional in terms of pitch; here, the seventh chords, in diminished and half diminished forms, and Augmented sixth chords introduce chromaticism. Nr. 2 *Melologo*'s archetypes include the *Quiescenza* as an after-cadence structure for resolution. In Auftritt II, Nr. 2 *Melologo*, after an F-major *cadenza composta* in mm. 28-30, the *quiescenza* determines the finalization of the tonal arrival. Normally, this archetype is a synthetic entity that comes out of the analytical simple pitch entities. Therefore, they are objects of a definitive syntax.

[164] See Arnold Schoenberg, *Fundamentals of Music Composition*, ed. Gerald Strang and Leonard Stein (London: Faber and Faber, 1967), 1-84.

In *Adama*, pitch entities do not bring these sorts of archetypes, because the same static pitch equation cannot be maintained; thus, a universal of definitive tonal syntax is not applicable to *Adama*. At first glance, this feature of separating *Adama*'s syntax from the tonal syntax in *Adama* could be understood as completely creating an indefinitive syntax. This is generally the case; however, *Adama* creates its own definitive syntax particularly based on the remembrance of the same form of sound entities through its own progression alongside with *Zaide*.

An example of this can be found in the *Versuchen* Impulse instances on p. 67 – *Mund* in Bass Trombone synthesizes with continuous line fluctuations through mm. 65-83. In addition, a larger synthesis of this idea in relation to *Zaide* appears in Aria 6 interruption on pp. 70-75, particularly mm. 66-68. The impulses in *Zaide*, in the first violin that starts in m. 59, represent the impulses appearing in *Adama*; however, in this particular section, the audience can no longer identify these impulses in their analytical components. Instead, the overall synthesis of the components becomes the prevailing sound entity.

Arguably *Erde-Blut–Mutter* in the Woman and Man's lines on pp. 98-101 presents another example of the synthesis of the impulses. Here *Versuchen* impulses are apparent between mm. 8-70 and, as in the merge–synthesis of the *Mund* example, stage a synthesis of the original ideas in the beginning of the

opera. A similar elaboration continues from m. 70 till m. 110 in *Steinigung* on p. 173-203, a closely related but not exact repetition except late in m. 73; examples include violin in mm. 74-75, Father mm. 76-77, Double Bass and Bass Flute in mm. 77-78, and Bass clarinet in mm. 83-84. In fact, all the quick impulses in *Steinigung* and prior to this movement are analytically connected to the *Versuchen* impulses, although they are synthetically new entities.

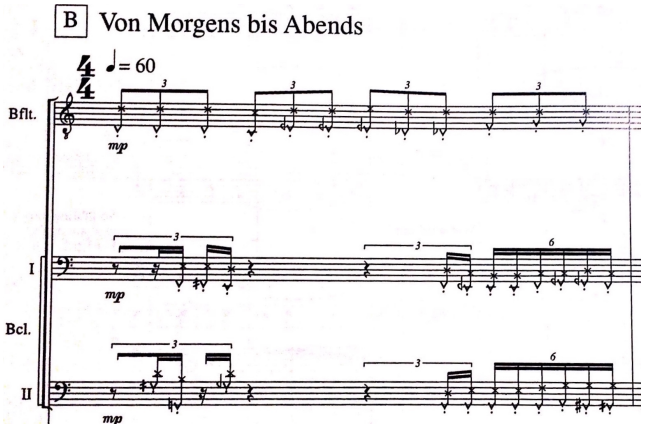

Figure 10. *Von Morgens bis Abends* Impulses p. 16

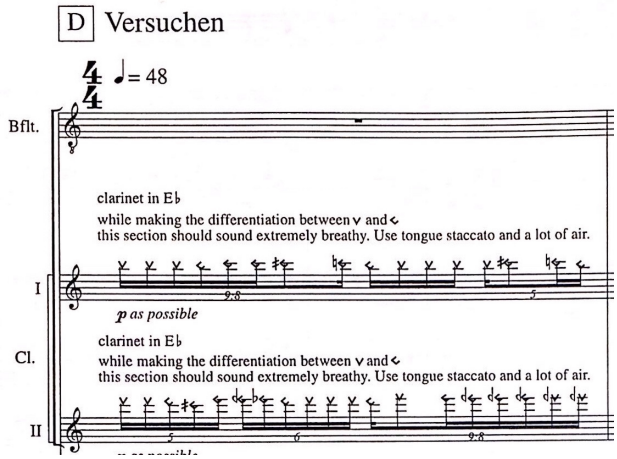

Figure 11. *Versuchen* Impulses p. 46

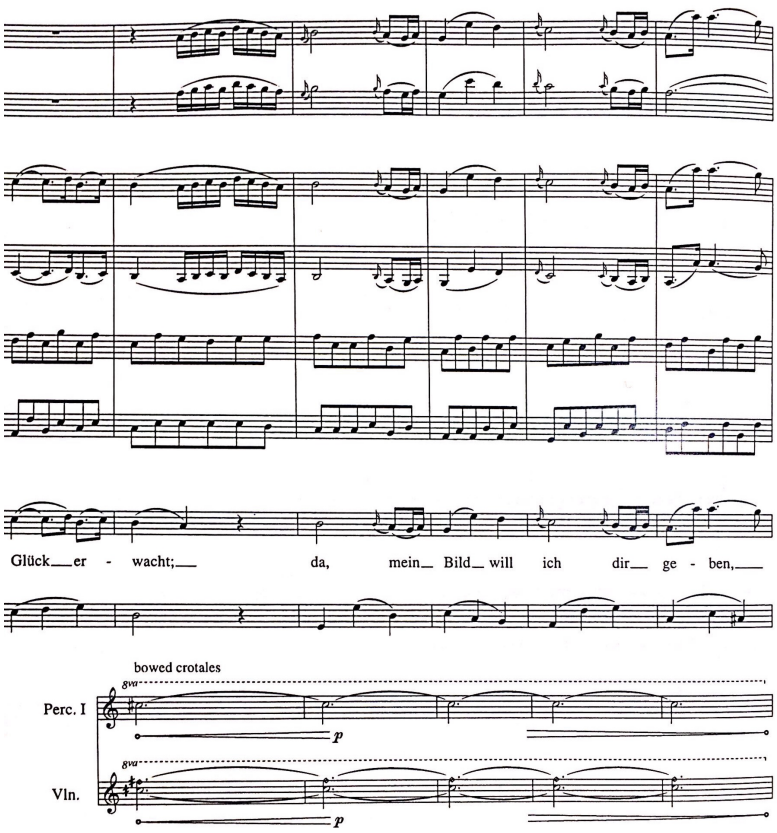

Figure 12. First *Adama* interruption to *Zaide*
by Percussion I and Violin, p. 34, m. 92

The stratification strategy in the entire work is *Adama*'s simultaneous interruptions by small groups of instruments, mostly as an instrumental duo. An example can be found in p. 33, m. 92 bowed crotales, and violin harmonics. This sort of simultaneity does not create a synthesis between the two works, but, instead, it has the function of reminding the audience of *Adama's* interruption to *Zaide*, the dual identity and stratification of the autonomy of these two works during a specific moment. The aggregate sonority with these

interruptions creates completely alien sound worlds. *Zaide*'s fluent and smooth harmonic changes are suddenly disrupted by short attack percussive sounds from a register that is two octaves higher, which mostly belong to a harsh complex spectrum or a dissonant pitch relation such as a tritone relation to *Zaide*'s pitch collection. For example, in Act II, p. 128, the B-minor sonority in the *Zaide* ensemble is disrupted by an F tritone in the bass trombone in *Adama*. The *Zaide* ensemble continues as A major, which brings the sonority of interruption as major third apart.

A similar idea of interruption comes in the form of perfect fifth and the unison in m. 44 on p. 136. The D-major *Zaide* modulates into A major; meanwhile, the interruptive *Adama* is played by percussions on timpani with superball mallet from a pitch level of the same A. This time, although the pitch is the same, the result is completely different due to the usage of a superball mallet. Though the invariance in the pitch level is the same, aspects of the produced sounds are distant to each other, and an actual stratification between the two musical objects achieved.

CONCLUSION

Pitch in the *Zaide / Adama* context is an analytical static cognitive entity that is explainable either fully or partially with the fixed MI equation in relation to consonance theory and the contextual patterns in the cycle of fifths and transformational cycles. These entities are synthetically connected to their analytical component either as an exact analogy of a full set or a subset of the original entity. An absolute analogy of the full superset and the components does not exist in the context of *Adama*; the MI equation is carefully dispersed by Czernowin's musical language. In general, the analytical entity recognitions in musical definitive syntaxes can be explained by the MI equations in simple rules and objects. For instance, combinatoriality is a simple rule of linear equations in terms of the analysis that I have presented in this dissertation, without compound rules and without the indeterminacy of synthetic and intuitively recognized sound entities.

However, the same analytical structures and definitive syntactic objects and rules have a blurriness in *Zaide/Adama* that leads us to synthesis and further to intuitive recognitions in Kantian terms, because the static pitch entities do not explain the actual compositional processes or the composer's creative ideas. This is why static pitch entities are limited mental structures.

Each entity recognition has analytical components that are simultaneously recognized with the synthetic entity. Furthermore, the intuitive recognitions can be known independent of the correlation between the analytic and synthetic operations; therefore, the analytic and synthetic recognitions do not necessarily correspond to a unified simple entity. Thus, the static pitch recognitions cannot be easily separated into a simple dualism. The same structures, in terms of limited set objects and entity recognitions, present synthetic appearances along with their analytical components. As a result of the correlation between analytic and synthetic recognitions, the tonal hierarchies and event hierarchies coexist; therefore, the definitive syntaxes and indefinitive syntaxes are present in the mind as modalities of musical recognition.

The MI equation is the predominant object of the musical mind in terms of determining the definitive and indefinitive syntaxes. Static pitch is a mental property that has this quality of equation; therefore, it confirms each appearance of MI equations in the instant entity recognitions as an event hierarchy and determines the definitiveness of syntactic appearances for a generalization of the recognitions in the syntax.

In *Adama's* context, I discussed dynamic pitch as an entity that contextually breaks *Zaide*'s MI equation in terms of definitive syntax. However, the dynamic pitch only contextually breaks the static pitch centricity; thus,

dynamic pitch should not be understood as a syntactic object that inherently belongs to the indefinitive syntactic appearances. In *Adama*, the appearances of dynamic pitch create an indefinitive syntax that generates different, complex sound entities in contrast to the tonal context of *Zaide,* which is limited with the appearances of sound entities that are generated out of static pitch entities. This is why the dichotomy between static pitch and dynamic pitch is a contextual part of the MI equation's larger problematic, that is the differentiation of the definitive syntax from the indefinitive syntax, which is tightly presented in the tonal context of *Zaide*.

Indefinitive syntax, event hierarchies, and auditory stimulation due to complex sound recognitions can be present in the tonal context instantly and, thus they constitute a contextual recognition. However, the central problematic here is the reduction of complex sounds through the definitive syntaxes with MI equations. Any sound recognition presents itself to the mind in definitive and indefinitive objects and rules. Thus, listening and attention have a significant role in the recognition of the definitiveness and indefinitiveness. *Zaide* can be listened to for reasons beyond the consideration of the MI equation. This is why the findings here should be read as highlighting the limitations of static pitch definitions and definitive syntax, and not as a universal theory for the elimination of *Zaide*'s MI equation.

The overall tonal hierarchies and definitive syntax of *Zaide* and the appearances of MI equations in it are challenged in *Adama*. The reason why *Adama* is non-reductive to its analytical components lies in the differentiations in the MI equations. This is the central reason why we are able to identify *Adama*'s musical syntax as being a more complex musical language than *Zaide*'s musical syntax. Nonetheless, *Adama* also includes static pitch entities as I explained in Chapter IV. The limitation of listening and attention in the determination of *Zaide*'s definitive syntax is also applicable to the *Adama* context, within *Adama's* own event hierarchies.

The indefinitive musical syntax is the main context that includes the originality of the composer's idea, because it is recognized as new and fresh; it is about the stimulation of subjective experiences and auditory sensations that are not limited to deterministic syntactic appearances. The original sensations transcend to the new recognitions in the mind.

Principally, contemporary compositional practices require indefinite appearances in creation, where the composer is free to determine the boundaries of the indefinitiveness and to create personal and unique expressions without analytical limitations. Thus, the expressions can stay as non-reductive entities.

The physical limitations of the signification of sound assemblages and creation are controllable with definitive syntaxes with fixed MI equations. However, a composer's focus is not always towards a justification of the actual representation of the material quality, and can instead be about creating transcendence towards synthetic recognitions. Definitive syntaxes provide a systematics to obtain mental representations; however, the actual *a priori* subjective experience is independent of the definitive syntax.

Creativity, however, lays in synthesis and intuition, and not in the analytics of the musical creation. Even though *Adama* includes definitive properties of static pitch entities that fit into the definitive syntactic appearance of pitch in simplex combinatoriality, it complicates the definitive aspects of the musical syntax of *Zaide* with indefinitive ones, breaking the MI equations and presenting the analytical components in isolation as "dust particles,"[165] as well as dealing with translation problems between all of the compositional creative mediums on its own terms. No simple MI equation can explain the generative processes in *Adama* where there are individual instances that continue their own synthetic, autonomous nature. Thus, *Adama* does not complement but rather complicates the unfinished Mozart opera.

[165] Czernowin, "The Other Tiger," 5.

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THE COMPOSITION PORTFOLIO

Part II

A Composition Portfolio
Presented to the Faculty of the Graduate School
of Cornell University
In Partial Fulfillment of the Requirements for the Degree of
Doctor of Musical Arts

by
Canbekir Bilir
May 2019

TABLE OF CONTENTS

PART II

KATIK

For Orchestra

Can Bilir

2019

Duration

Approximately 9 min

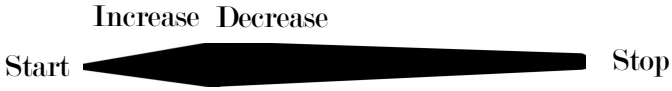
Orchestra

3[I,II,pic] 3[I,II, corA] 3[I,II,bcl] 2[I,cbn] – 4[I,II,III,IV] 1[tp] 3[I,II, btbn] 1[tb] – timp perc [I, II]: cym / sus.cym / crot / sd / BD / Tt / t.bells / ratch. – hp, 4t, str.

EXPLANATIONS

Strings: During the continuous glissandos, the dynamics and tone quality will be the same as much as possible; this will create a natural illusionary connection between different lines and their spectral envelope.

Scratch tone:



Wide vibrato; (between quarter tones and wider):

Harp bows with rosined fishing line.
metal tuning wrench (or similar metal tool)

Timpani I and II: mm. 52-71; glissando will be continuous, connect the pitches in the change of the drum. Two percussionists will be next to each other.

Crotales: hanging on a string or a fishing line.
m. 13: strike the instrument, dive into a water bowl. The pitch bends naturally.

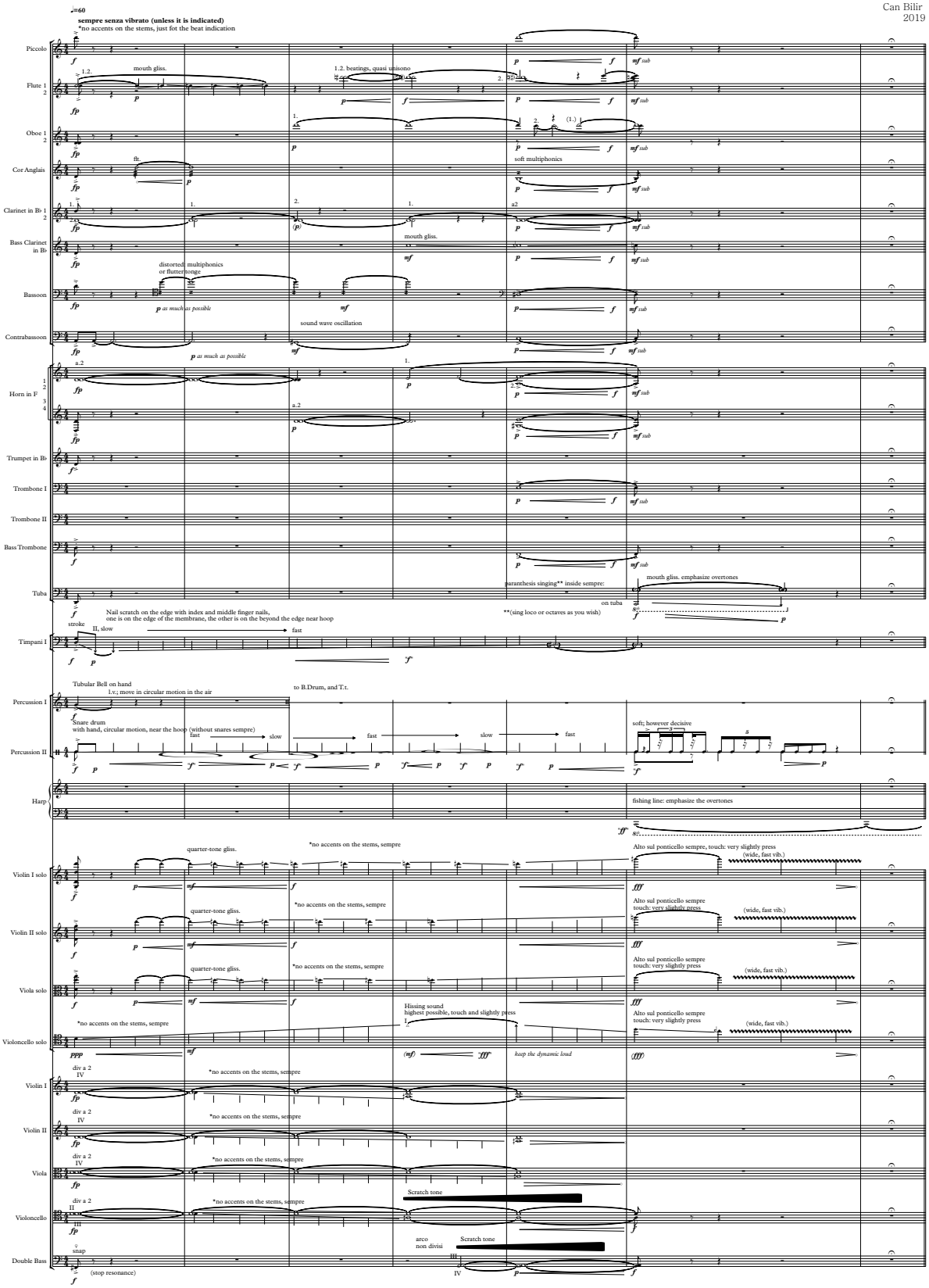
Hand friction in circular motion, on the membrane

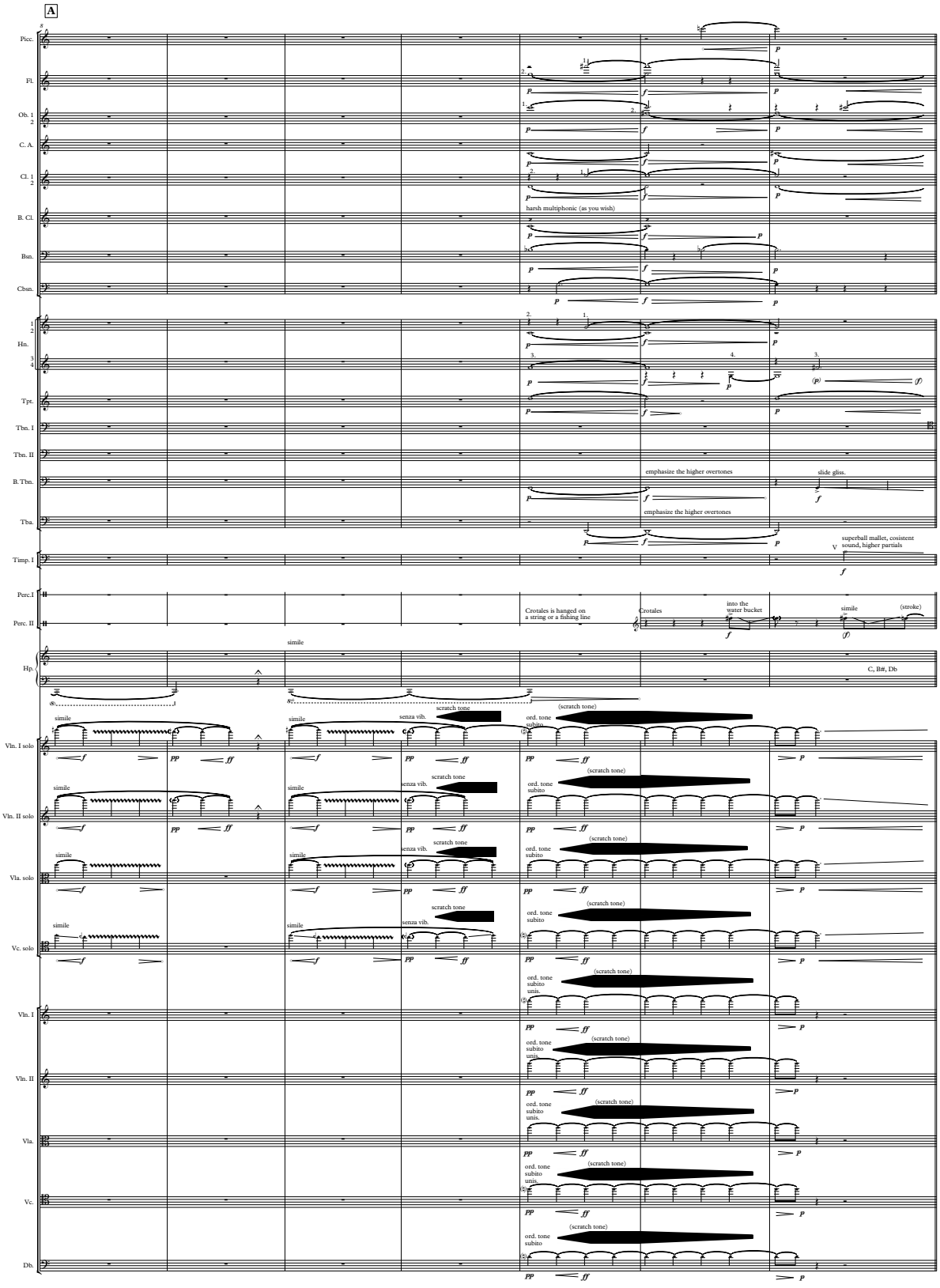
Score in C

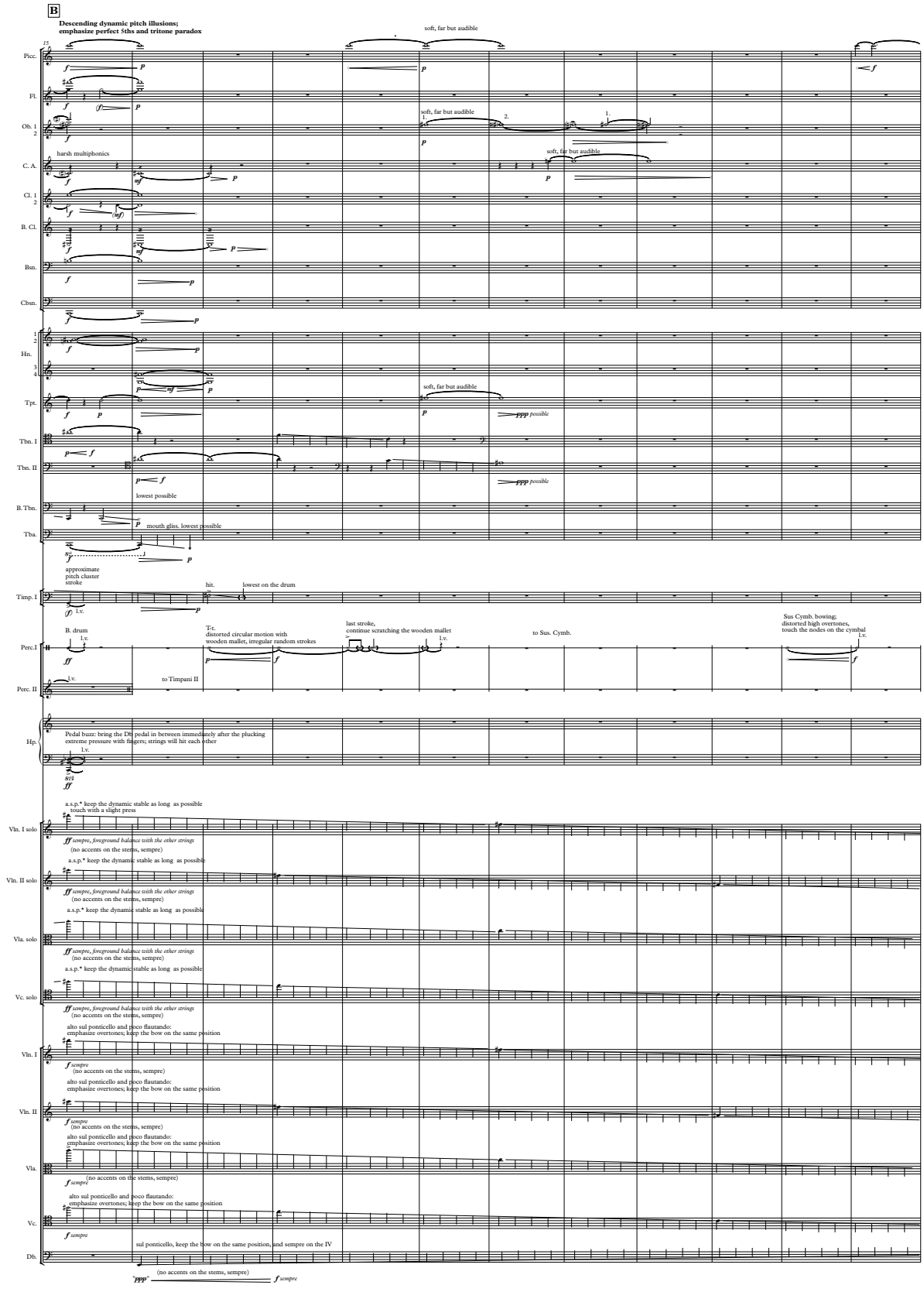
KATIK

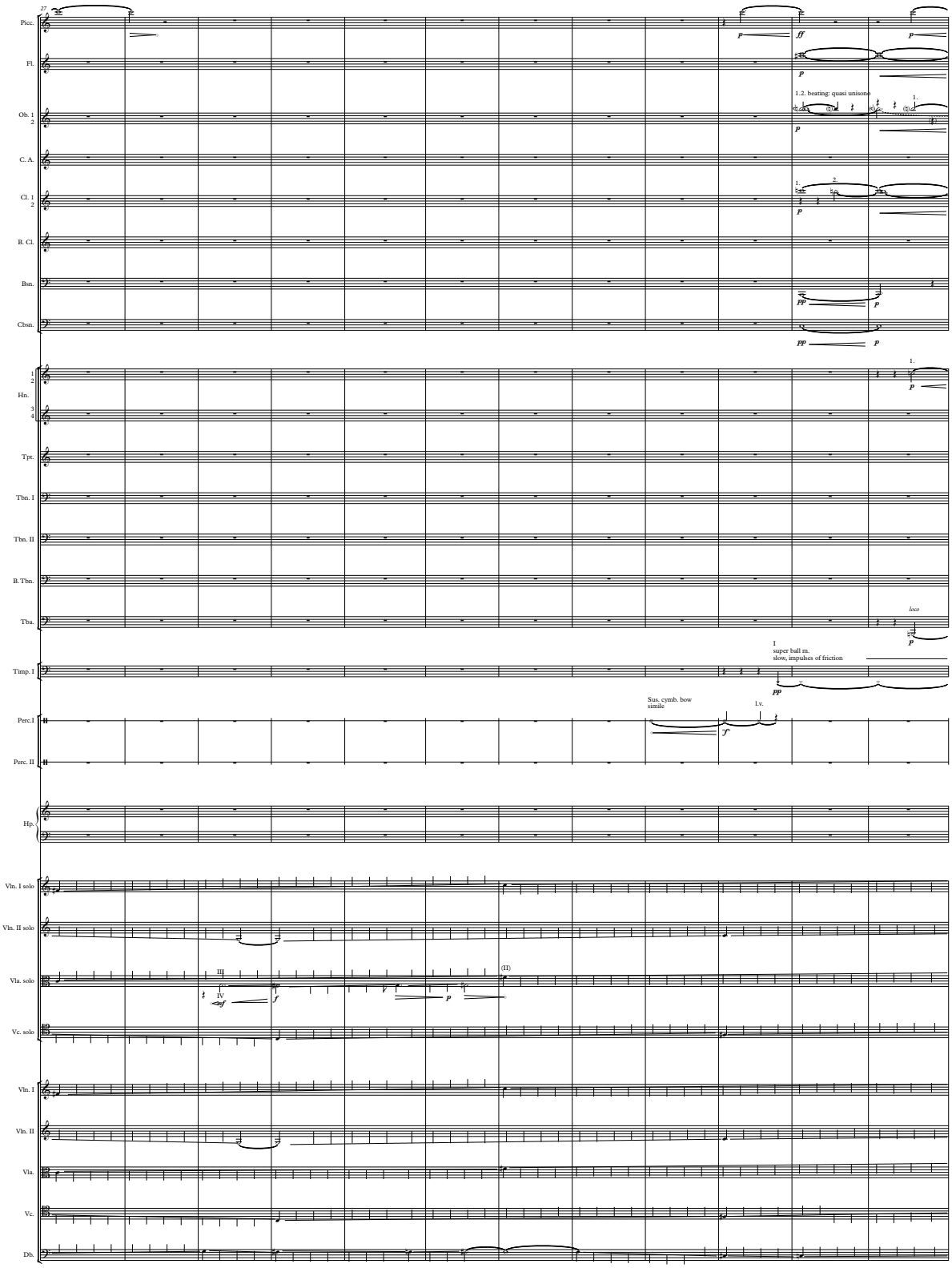
for Adrian Slywotzky and Cornell Symphony Orchestra

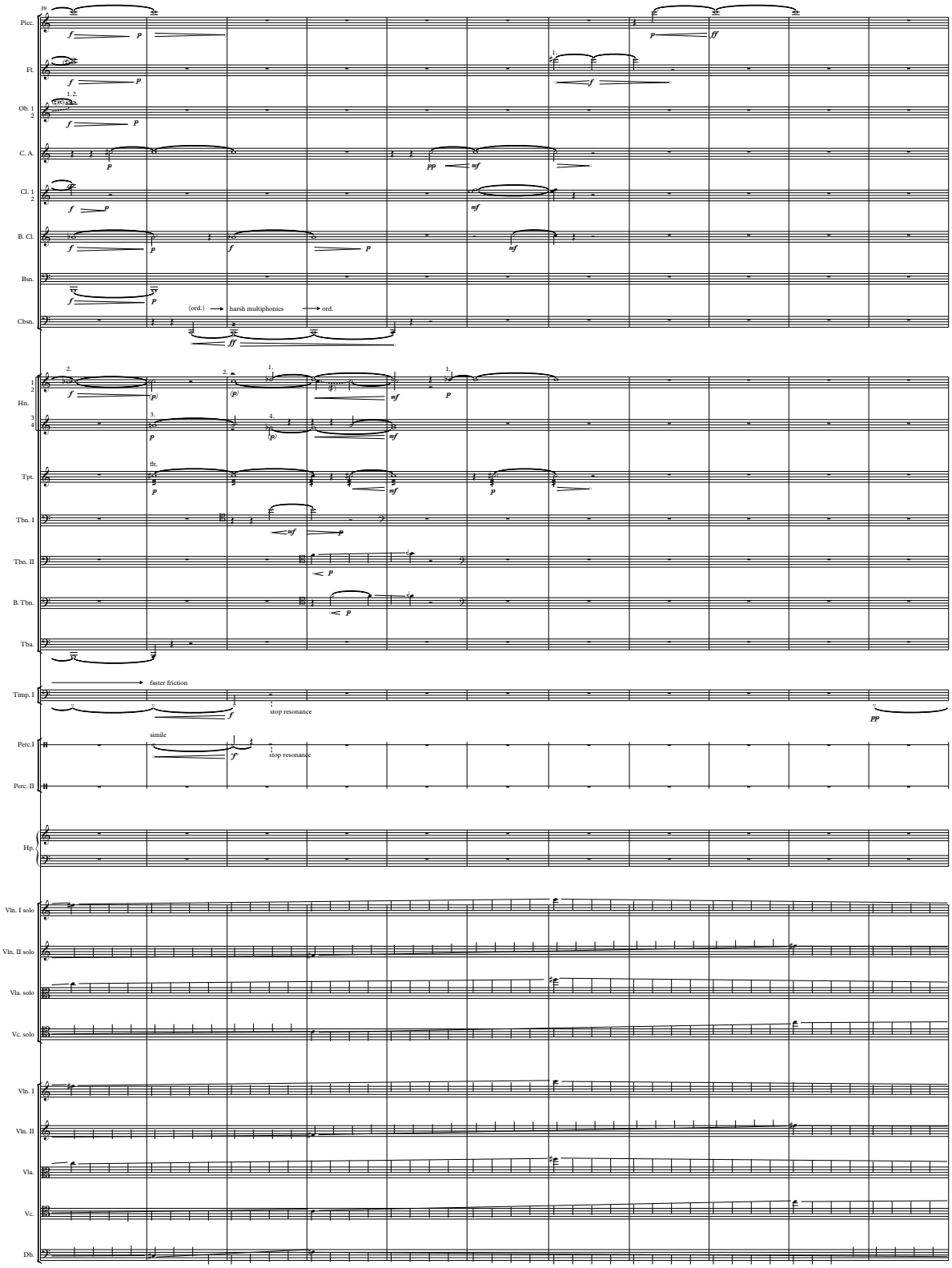
Can Bilir
2019

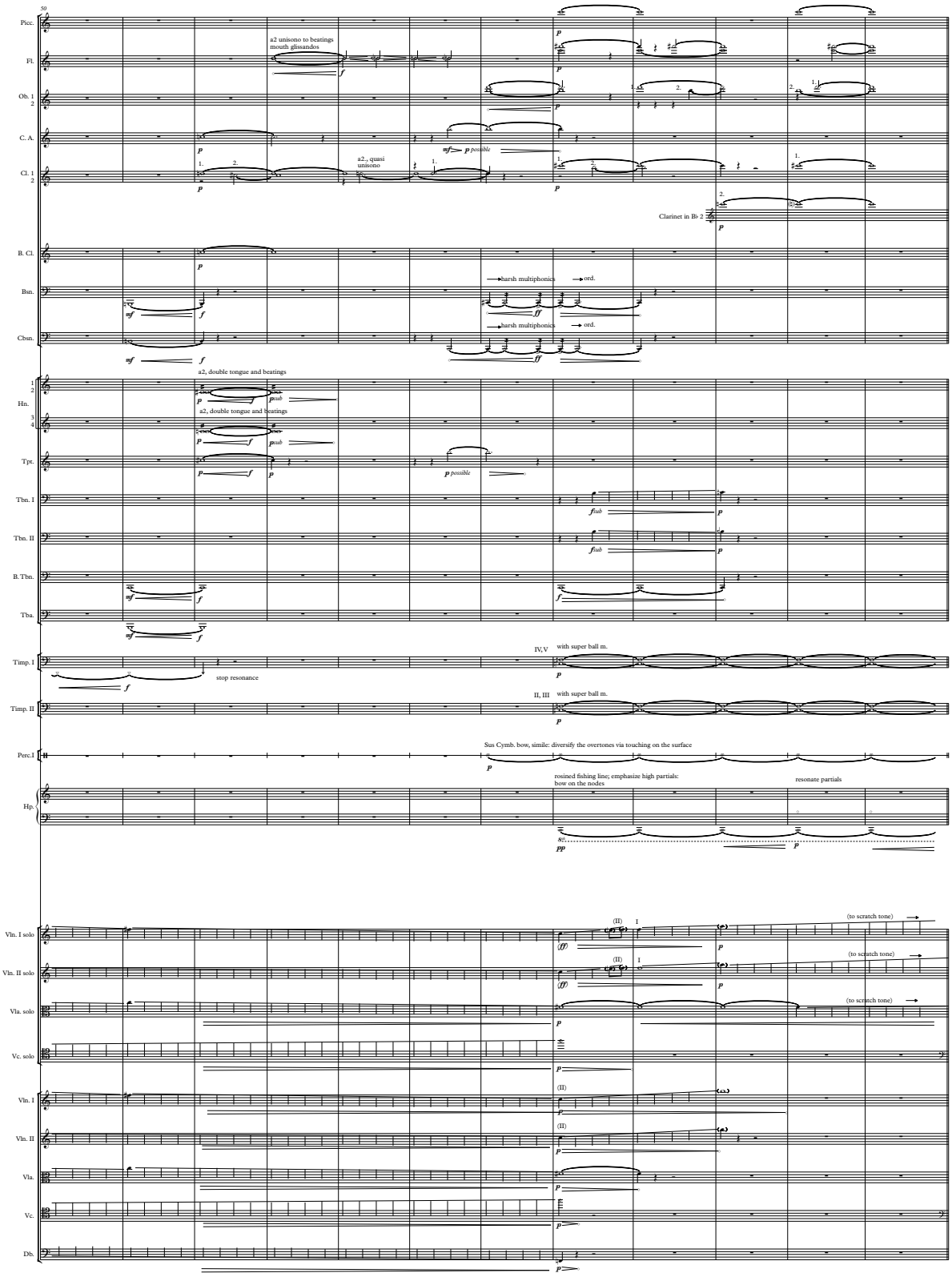


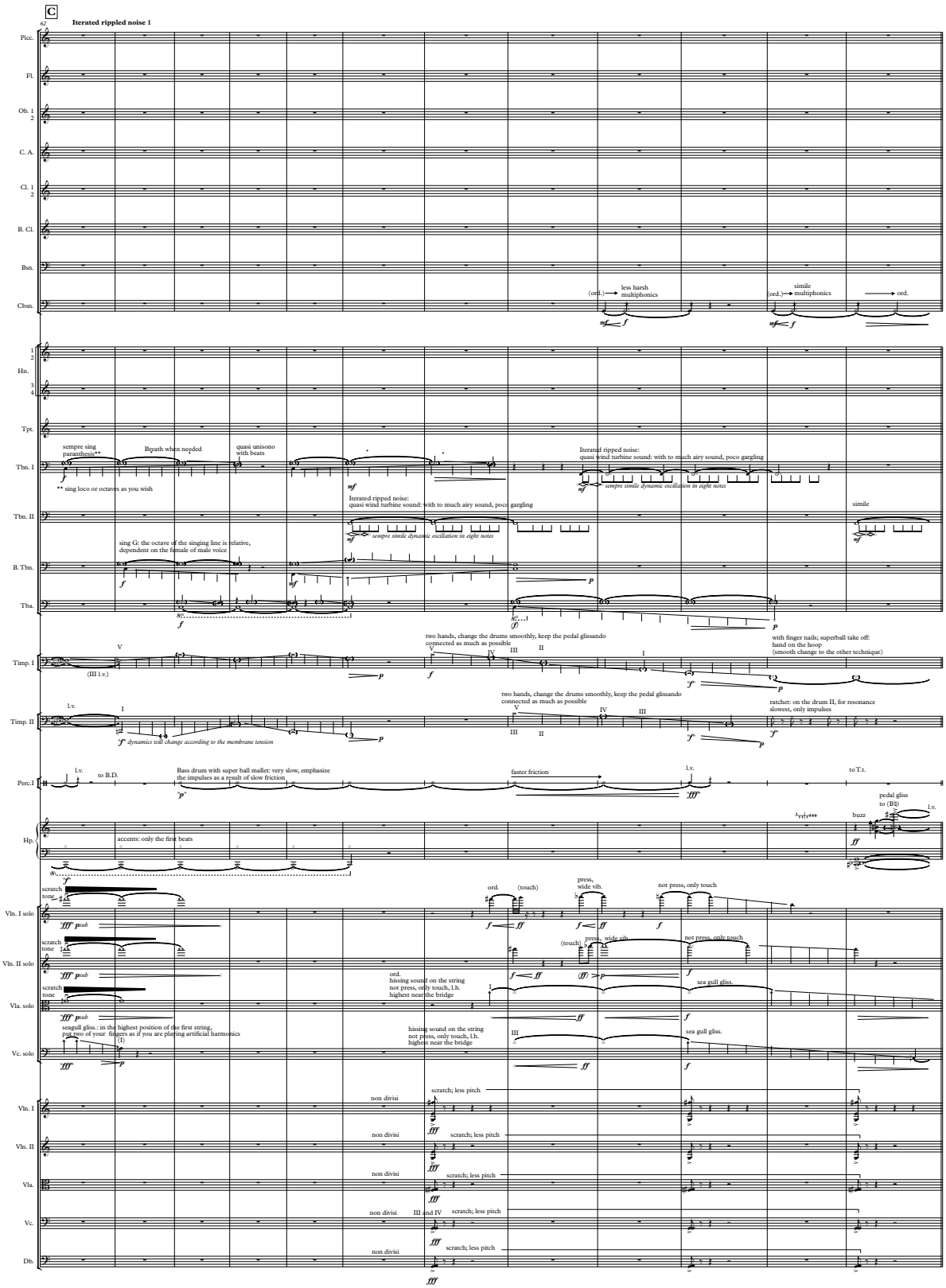

A
Picc.
Fl.
Ob. 1 2
C. A.
Cl. 1 2
B. Cl.
Bsn.
Cbsn.
Hn.
Tpt.
Tbn. I
Tbn. II
B. Tbn.
Tba.
Timp. I
Perc.I
Perc. II
Hp.
Vln. I solo
Vln. II solo
Vla. solo
Vc. solo
Vln. I
Vln. II
Vla.
Vc.
Db.
harsh multiphonic (as you wish)
emphasize the higher overtones
slide gliss.
superball mallet, cosistent sound, higher partials
Crotales is hanged on a string or a fishing line
Crotales
into the water bucket
simile
(stroke)
C, B#, Db
scratch tone
senza vib.
ord. tone subito
(scratch tone)
ord. tone subito unis.

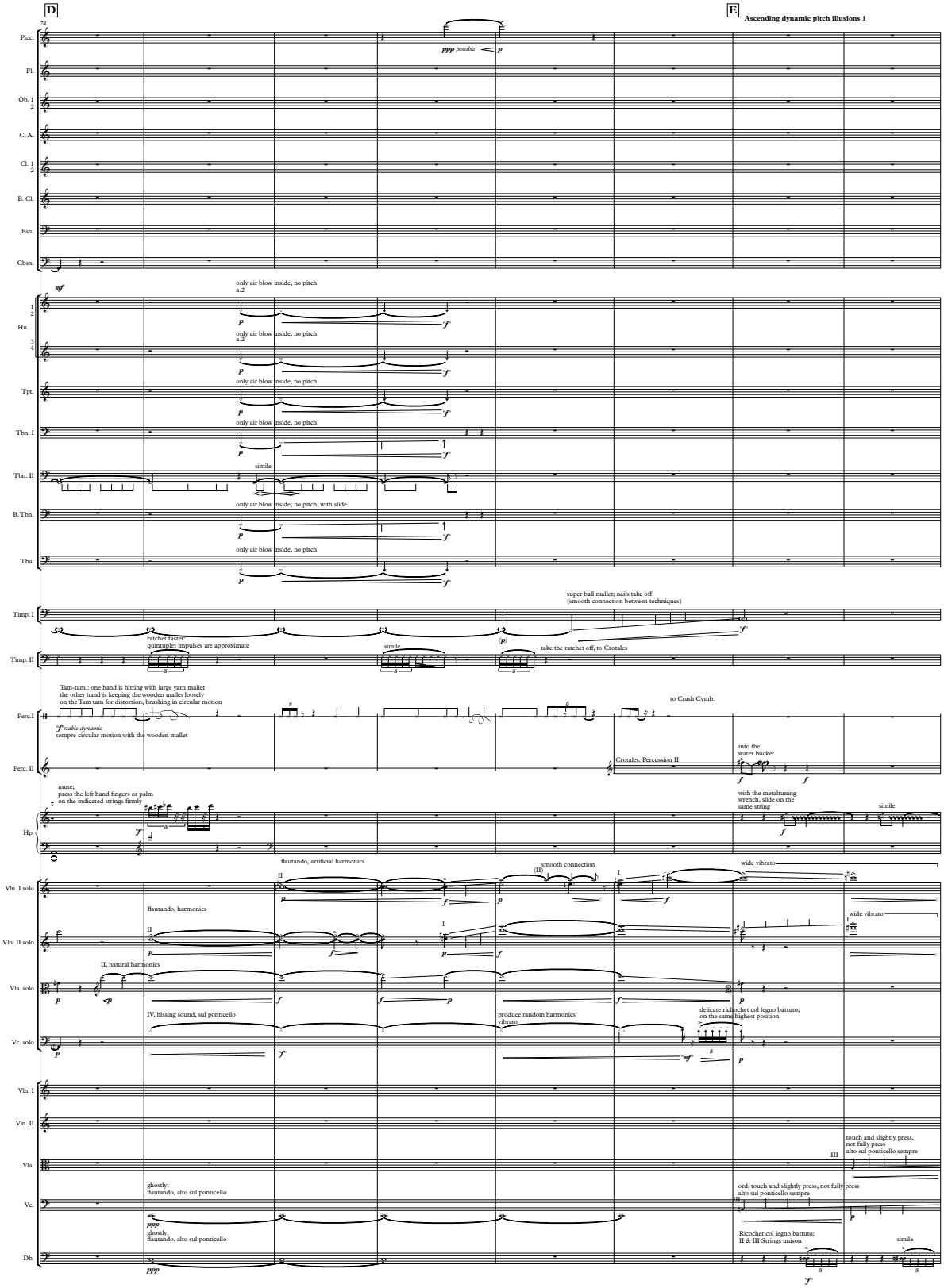

B
Descending dynamic pitch illusions;
emphasize perfect 5ths and tritone paradox
15
Picc.
Fl.
Ob. 1
2
C. A.
Cl. 1
2
B. Cl.
Bsn.
Cbsn.
1
2
Hn.
3
4
Tpt.
Tbn. I
Tbn. II
B. Tbn.
Tba.
Timp. I
Perc. I
Perc. II
Hp.
Vln. I solo
Vln. II solo
Vla. solo
Vc. solo
Vln. I
Vln. II
Vla.
Vc.
Db.
soft, far but audible
harsh multiphonics
lowest possible
mouth gliss. lowest possible
approximate pitch cluster stroke
hit.
lowest on the drum
B. drum
T-t. distorted circular motion with wooden mallet, irregular random strokes
last stroke, continue scratching the wooden mallet
to Sus. Cymb.
Sus Cymb. bowing; distorted high overtones, touch the nodes on the cymbal
to Timpani II
Pedal buzz: bring the Db pedal in between immediately after the plucking
extreme pressure with fingers, strings will hit each other
a.s.p.* keep the dynamic stable as long as possible
touch with a slight press
sempre, foreground balance with the other strings
(no accents on the stems, sempre)
alto sul ponticello and poco flautando:
emphasize overtones; keep the bow on the same position
sempre
sul ponticello, keep the bow on the same position, and sempre on the IV
"ppp"
* Find a bow position that will constant and emphasize the overtones; especially the Shepard Tone and the combination tones.

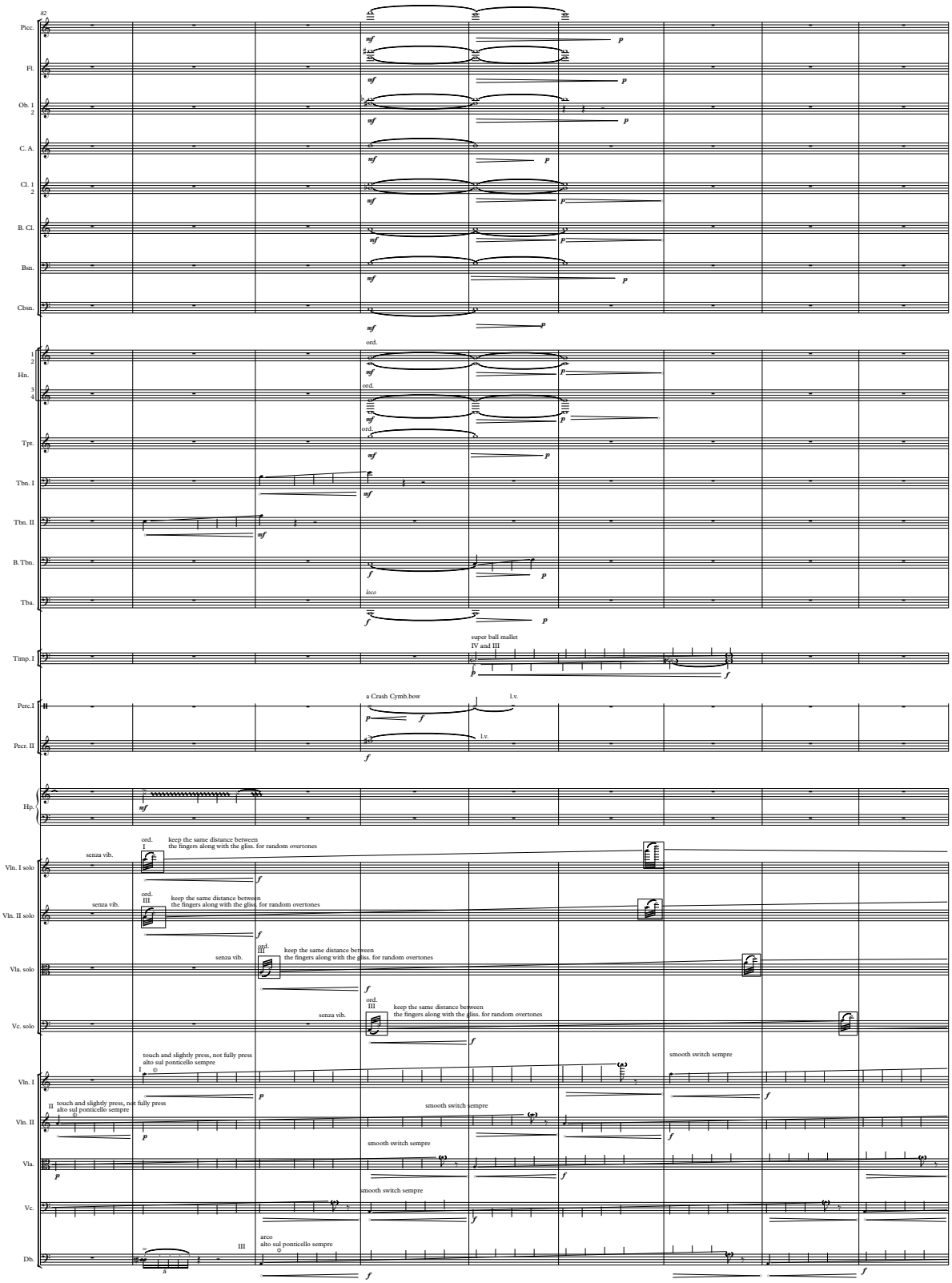

27
Picc.
Fl.
Ob. 1
2
C. A.
Cl. 1
2
B. Cl.
Bsn.
Cbsn.
1
2
Hn.
3
4
Tpt.
Tbn. I
Tbn. II
B. Tbn.
Tba.
Timp. I
Perc.I
Perc. II
Hp.
Vln. I solo
Vln. II solo
Vla. solo
Vc. solo
Vln. I
Vln. II
Vla.
Vc.
Db.
1.2. beating: quasi unisono
super ball m.
slow, impulses of friction
Sus. cymb. bow
simile
l.v.
loco
III
IV
(II)

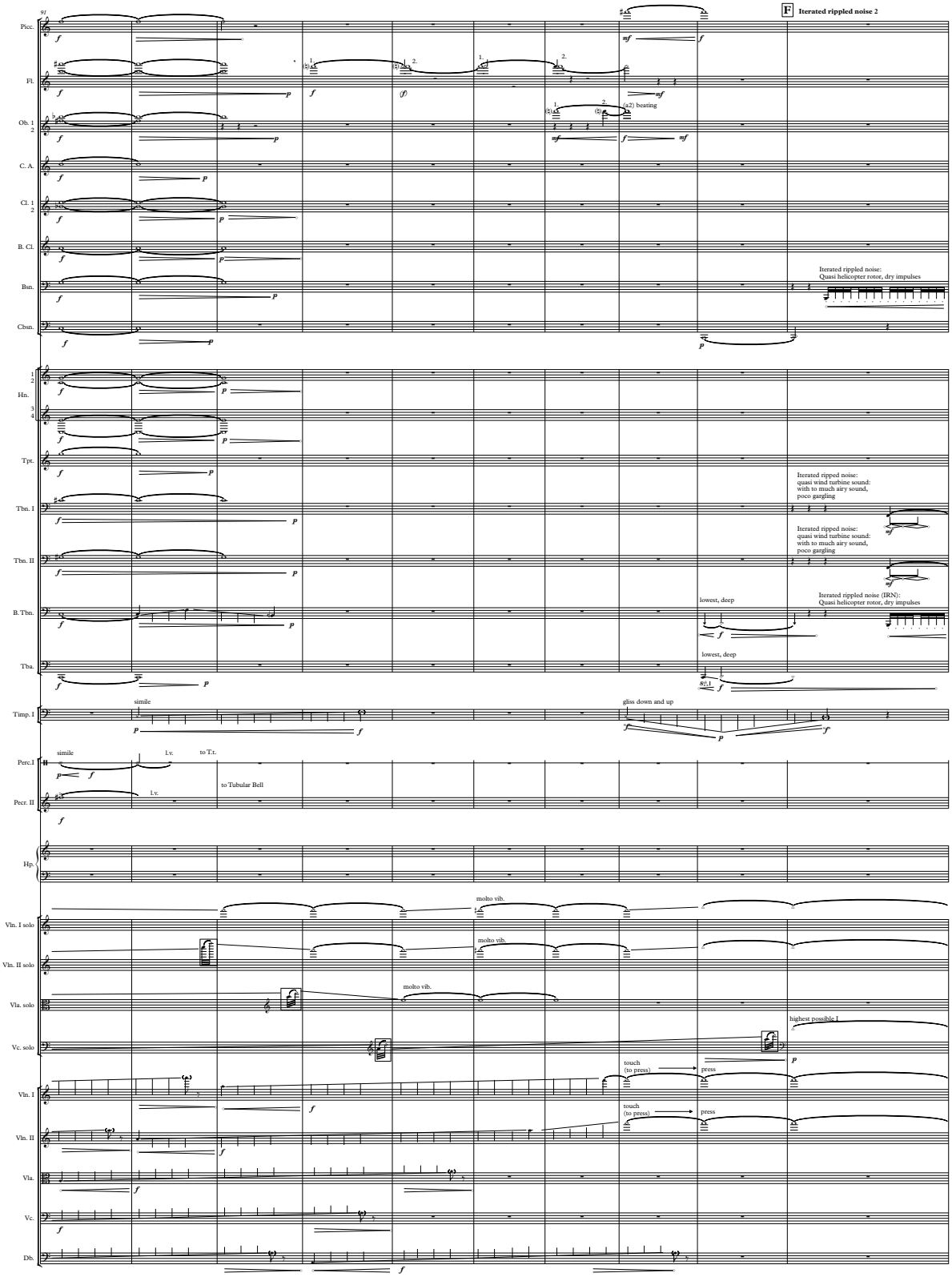

39
Picc.
Fl.
Ob. 1
2
C. A.
Cl. 1
2
B. Cl.
Bsn.
Cbsn.
(ord.)
harsh multiphonics
ord.
1
2
Hn.
3
4
flt.
Tpt.
Tbn. I
Tbn. II
B. Tbn.
Tba.
faster friction
stop resonance
simile
stop resonance
Timp. I
Perc.I
Perc. II
Hp.
Vln. I solo
Vln. II solo
Vla. solo
Vc. solo
Vln. I
Vln. II
Vla.
Vc.
Db.

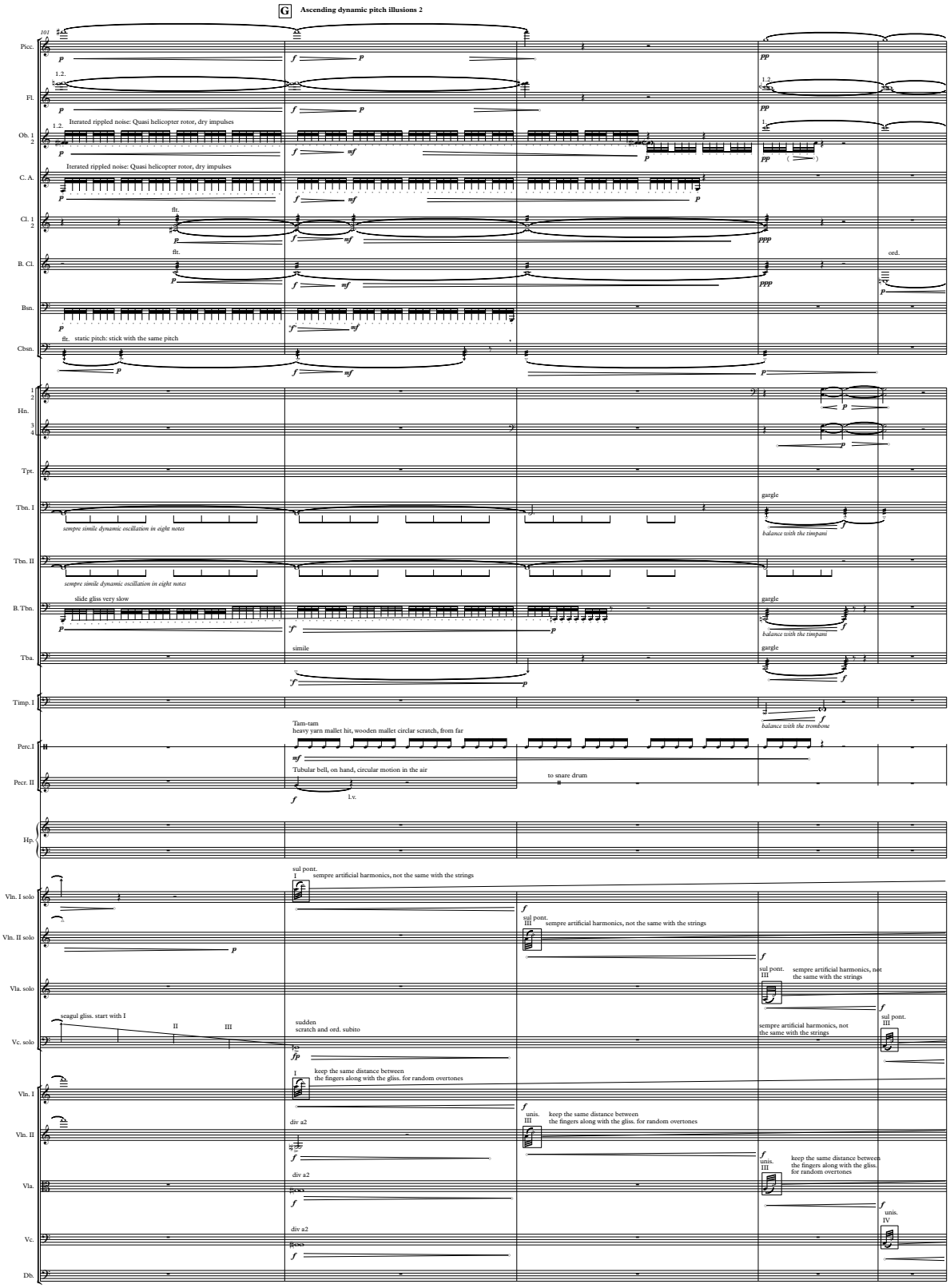

50
Picc.
Fl.
Ob. 1 2
C. A.
Cl. 1 2
B. Cl.
Bsn.
Cbsn.
Hn. 1 2 3 4
Tpt.
Tbn. I
Tbn. II
B. Tbn.
Tba.
Timp. I
Timp. II
Perc.I
Hp.
Vln. I solo
Vln. II solo
Vla. solo
Vc. solo
Vln. I
Vln. II
Vla.
Vc.
Db.
a2 unisono to beatings
mouth glissandos
a2., quasi unisono
mf p possible
Clarinet in B♭ 2
harsh multiphonics
ord.
a2, double tongue and beatings
p possible
IV,V
with super ball m.
II, III
with super ball m.
stop resonance
Sus Cymb. bow, simile: diversify the overtones via touching on the surface
rosined fishing line; emphasize high partials:
bow on the nodes
resonate partials
(to scratch tone)

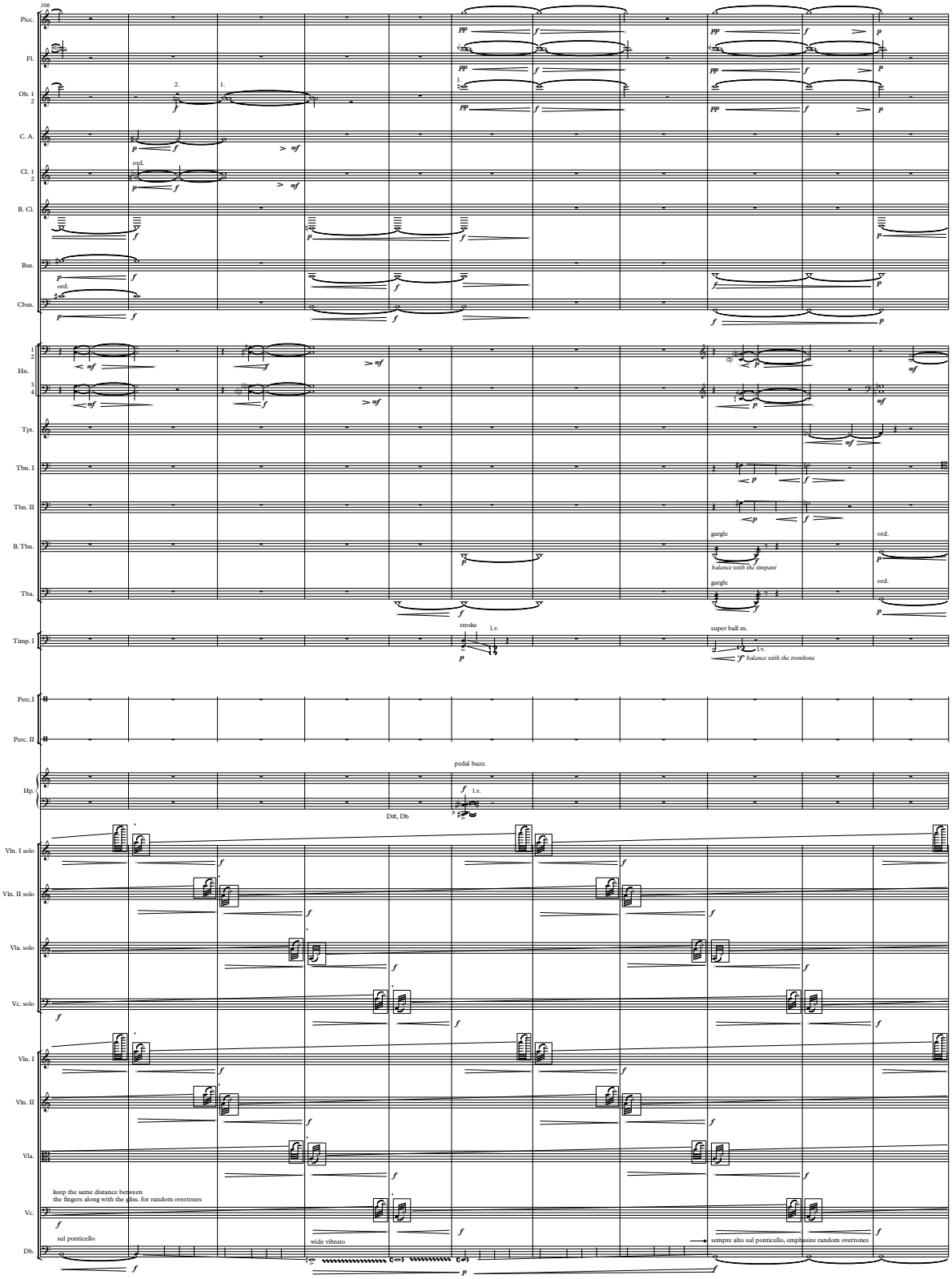

C
62
Iterated rippled noise 1
Picc.
Fl.
Ob. 1 2
C. A.
Cl. 1 2
B. Cl.
Bsn.
Cbsn.
(ord.) less harsh multiphonics
simile (ord.) multiphonics ord.
1 2
Hn.
3 4
Tpt.
Tbn. I
sempre sing parenthesis**
Breath when needed
quasi unisono with beats
** sing loco or octaves as you wish
Iterated ripped noise: quasi wind turbine sound: with to much airy sound, poco gargling
sempre simile dynamic oscillation in eight notes
Tbn. II
simile
sing G: the octave of the singing line is relative, dependent on the female of male voice
B. Tbn.
Tba.
Timp. I
(III l.v.)
two hands, change the drums smoothly, keep the pedal glissando connected as much as possible
with finger nails; superball take off: hand on the hoop (smooth change to the other technique)
Timp. II
l.v.
dynamics will change according to the membrane tension
Perc.I
to B.D.
Bass drum with super ball mallet: very slow, emphasize the impulses as a result of slow friction
faster friction
to T.t.
pedal gliss to (B♮)
buzz
Hp.
accents: only the first beats
scratch tone
Vln. I solo
Vln. II solo
Vla. solo
Vc. solo
ord. (touch) press, wide vib. not press, only touch
ord. hissing sound on the string not press, only touch, l.h. highest near the bridge
sea gull gliss.
seagull gliss.: in the highest position of the first string, put two of your fingers as if you are playing artificial harmonics
hissing sound on the string not press, only touch, l.h. highest near the bridge
Vln. I
Vln. II
Vla.
Vc.
Db.
non divisi
scratch; less pitch
III and IV

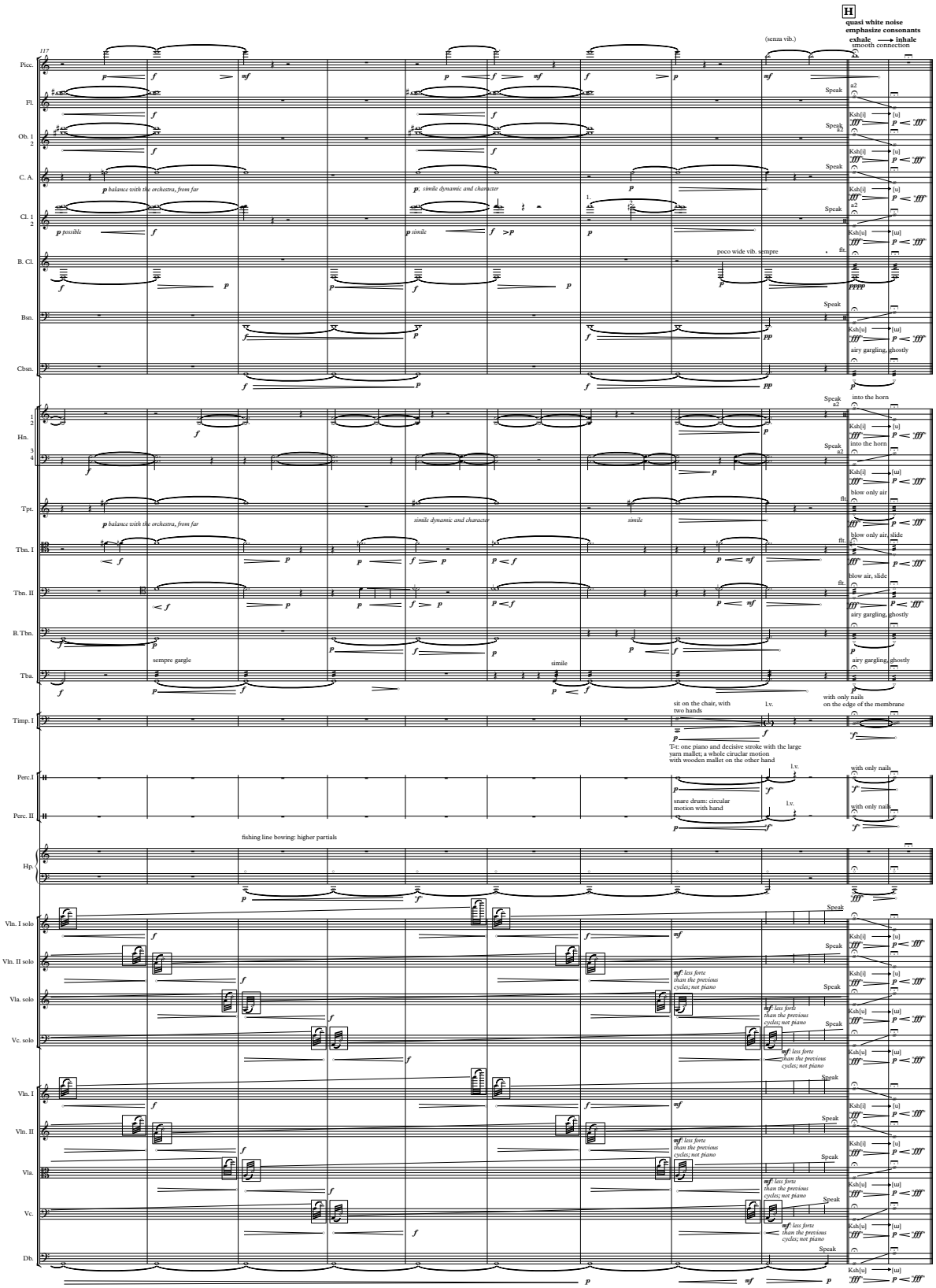

D
E
Ascending dynamic pitch illusions 1
Picc.
Fl.
Ob. 1 2
C. A.
Cl. 1 2
B. Cl.
Bsn.
Cbsn.
Hn. 1 2
Hn. 3 4
Tpt.
Tbn. I
Tbn. II
B. Tbn.
Tba.
Timp. I
Timp. II
Perc.I
Perc. II
Hp.
Vln. I solo
Vln. II solo
Vla. solo
Vc. solo
Vln. I
Vln. II
Vla.
Vc.
Db.
ppp possible
only air blow inside, no pitch
a.2
simile
super ball mallet; nails take off
(smooth connection between techniques)
ratchet faster;
quintuplet impulses are approximate
take the ratchet off, to Crotales
Tam-tam.: one hand is hitting with large yarn mallet
the other hand is keeping the wooden mallet loosely
on the Tam tam for distortion, brushing in circular motion
to Crash Cymb.
sempre circular motion with the wooden mallet
Crotales: Percussion II
into the
water bucket
mute;
press the left hand fingers or palm
on the indicated strings firmly
with the metaltuning
wrench, slide on the
same string
flautando, artificial harmonics
smooth connection
wide vibrato
flautando, harmonics
II, natural harmonics
IV, hissing sound, sul ponticello
produce random harmonics
vibrato
delicate ricochet col legno battuto;
on the same highest position
touch and slightly press,
not fully press
alto sul ponticello sempre
ghostly;
flautando, alto sul ponticello
ord, touch and slightly press, not fully press
alto sul ponticello sempre
Ricochet col legno battuto;
II & III Strings unison


82
Picc.
Fl.
Ob. 1 2
C. A.
Cl. 1 2
B. Cl.
Bsn.
Cbsn.
Hn. 1 2 3 4
Tpt.
Tbn. I
Tbn. II
B. Tbn.
Tba.
Timp. I
Perc.I
Perc. II
Hp.
Vln. I solo
Vln. II solo
Vla. solo
Vc. solo
Vln. I
Vln. II
Vla.
Vc.
Db.
ord.
loco
super ball mallet
IV and III
a Crash Cymb.bow
l.v.
senza vib.
keep the same distance between the fingers along with the gliss. for random overtones
touch and slightly press, not fully press alto sul ponticello sempre
smooth switch sempre
arco
alto sul ponticello sempre


91
F Iterated rippled noise 2
Picc.
Fl.
Ob. 1 2
(a2) beating
C. A.
Cl. 1 2
B. Cl.
Bsn.
Iterated rippled noise:
Quasi helicopter rotor, dry impulses
Cbsn.
Hn. 1 2
Hn. 3 4
Tpt.
Tbn. I
Iterated ripped noise:
quasi wind turbine sound:
with to much airy sound,
poco gargling
Tbn. II
Iterated ripped noise:
quasi wind turbine sound:
with to much airy sound,
poco gargling
B. Tbn.
lowest, deep
Iterated rippled noise (IRN):
Quasi helicopter rotor, dry impulses
Tba.
lowest, deep
Timp. I
simile
gliss down and up
Perc. I
simile
l.v.
to T.t.
to Tubular Bell
Perc. II
l.v.
Hp.
molto vib.
Vln. I solo
molto vib.
Vln. II solo
molto vib.
Vla. solo
highest possible f
Vc. solo
touch
(to press)
press
Vln. I
touch
(to press)
press
Vln. II
Vla.
Vc.
Db.


G
Ascending dynamic pitch illusions 2
Picc.
Fl.
Ob. 1 2
C. A.
Cl. 1 2
B. Cl.
Bsn.
Cbsn.
Hn.
Tpt.
Tbn. I
Tbn. II
B. Tbn.
Tba.
Timp. I
Perc.I
Perc. II
Hp.
Vln. I solo
Vln. II solo
Vla. solo
Vc. solo
Vln. I
Vln. II
Vla.
Vc.
Db.
Iterated rippled noise: Quasi helicopter rotor, dry impulses
flt.
static pitch: stick with the same pitch
ord.
sempre simile dynamic oscillation in eight notes
slide gliss very slow
simile
gargle
balance with the timpani
balance with the trombone
Tam-tam
heavy yarn mallet hit, wooden mallet circlar scratch, from far
Tubular bell, on hand, circular motion in the air
l.v.
to snare drum
sul pont.
sempre artificial harmonics, not the same with the strings
seagul gliss. start with I
sudden
scratch and ord. subito
keep the same distance between
the fingers along with the gliss. for random overtones
div a2
unis.


106
Picc.
Fl.
Ob. 1
2
C. A.
Cl. 1
2
B. Cl.
Bsn.
Cbsn.
1
2
Hn.
3
4
Tpt.
Tbn. I
Tbn. II
B. Tbn.
Tba.
Timp. I
Perc.I
Perc. II
Hp.
Vln. I solo
Vln. II solo
Vla. solo
Vc. solo
Vln. I
Vln. II
Vla.
Vc.
Db.
ord.
gargle
balance with the timpani
stroke
l.v.
super ball m.
balance with the trombone
pedal buzz.
D#, Db
keep the same distance between
the fingers along with the glis. for random overtones
sul ponticello
wide vibrato
sempre alto sul ponticello, emphasize random overtones



Cambridge & Ithaca

DÜŞÜK

For String Quartet, Javanese Gamelan Ensemble, Olfaction, and Readymade Objects

Can Bilir

2018

Duration

Approximately 26 min

Instrumentation

Violin I
Violin II
Viola
Violoncello
Bonang x1
Kendhang x1-2
Gender x1
Kenong x1-2
Gong-ageng x1-3
Ceng-ceng x1
Chimes x1
Emergency Thermal Blanket x1
Olfaction x2-4

Notes:

Strings: String quartet will use battery-operated foam-hand-fans for creating multiphonics on the indicated string. The section after m.236 shows the string resonation and stops, in very close view. Fishing lines should be rosined in advance.

Bonang: *Slendro*, any two bells upside down. Circular motion *sempre* with bonang mallets

Gender: Pelog. 20-30 very light brass pipes on the plates for circular motion, pipes are three different size approx. 30cm long, and 1- 5 cm diameters.

Kenong: only with long thin stick (1-1.5 meters long, 3-5 cm diameters).

Gong-ageng: 3 largest sizes, hit with the largest gong mallet on one hand, buzz with the wooden saron mallet on the other hand.

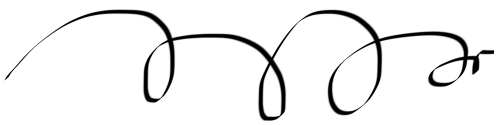
Ceng-ceng: one bell is stable, the other one is scratching on it for differentiation of the timbre.

Chimes: Made out of 50 in different sized steel cotter pins, attached and tied to a bunch of ropes that are tied together. All cotter pins are adjusted for random resonation
similar to a tuning fork, and they should be playable with one hand.

ER Blanket: Follow the text, double the speakers in mm.1-4, mm.192- 252, crackling sound, mm. 252-262 transition to sea sound, m.262 till the end, sea sound.

Olfaction: 2 to 4 people will put on three different types of essential oils (*attar*) that are locally produced in Turkey and middle-east, which are used in religious rituals in the region. The oils can be applied to clothes or skin.

Circular motion: Indicates the physical action, both the dynamic, timbre, and the bodily movements will change according to the circular motion. Follow the other intructions along with the circular motion.



Düşük

String Quartet, Javanese Gamelan Ensemble,
Olfaction, and Readymade Objects

for Momenta Quartet and Cornell Gamelan Ensemble

Can Bilir
2018

Speak & Play acoustic synthesis: speak by loud whispering and match the pitches

Read the text by whispering, and play on the instrument by thinking of phonology; both speaking and instrument will sound such as they are synthesized use subtle scratch tones with multiphonic quality, light bow with quick strokes, slow bow, the pitches on the stave is an example of the lines based on a spectrogram view of a phrase

2 - 3'

Viola

*"**f**" sempre*

Narrator 1: "A specter is haunting my mind – the specter of future. Definitely not a manifestation for the masses this time. The instant and the future, as appearances of promises, make individuals *düşük** for this particular moment, we understand it as a promise of salvation that ends up with an unwavering destiny of failure.

The Turkish saying *düşük* means lower, subordinate, a being that has already fallen. At the same time, it means miscarriage; not only a word for losing a baby before birth but a word for the death of a baby even before he or she develops to the potential expectancy of becoming alive. The same expectancy haunts the individual's time-free identity; it doesn't come from the individual, destiny springs out from something other than the one who is identifiable as a *düşük*. It is about temporal and external punishment, the sentencing to premature annihilation.

Ironically, the first three letters, *düş*, both denote a dream as a noun and a command, as if the ruler is ordering the dreamer to "fall down," an imperative mood.

We are able to notice that unreal realities of the past and future are becoming the true nature of the moments, the instances of existences. Beyond this presentation, a specter of the unreal existences in their embodied appearances determines the imagination. It is the multiplicity of different and similar temporalities that haunt every instance. These specters have been haunting the individual's mind since the day individuals were able to talk and transmit knowledge to each other instantly and exclude themselves from the concept of linear time."

*Düşük: Dooshook [dyʃyk]

Circular
molecular motion :
Sempre

Score for the Molecular Motion (model of liquid molecular Vibration and Rotation, Translation)
figure of visual illusion is indicating the constant cicular motion and complex impulses
Constatnly look at it and engage with the picture: circles indicate ricdular motion.
Find perceptive entities of figures and engage with the similarities on the instrument you play.

flipped 2 bonangs, resonating
two hands, wooden bonang mallets (not with regular mallets)

Bonang

5 minutes before the performance, prepare Tobacco and Lemon *Kolonyası*, *Hacı Yağı* and/or *Attar* on the fabrics or napkins; slight shake them silently and cover the room with smell; during the performance smell will come and go randomly as a result of the subtle motions in the air

Olfaction

***ppp** sound & **f** smell*

Follow the lines of the Narrator I,
match with the speaking, keep the ER Blanket sound in the foreground, however less than the Narrator's voice
slight shake and crackling with circular motion until the text is over in the end of 3rd measure

ER Blanket

mf

1:30 - 2'

2

*Speak & Play acoustic synthesis:
speak by loud whispering and match the pitches

Vln. I

*'**f**' sempre*

Narrator 2: "The late 90s is the date when knowledge evolved into an elusive projection of the constant haunting entities that exist in an incorporeal reality and that are dominating the past realities. Today, we are hardly able to notice the existence of unclassifiable small socio-economic groupings; therefore, we are not sure where the potential dormancy of being an underclass lies, and are confused with the appearance and the false representations of these apparitions.

Each *düşük* appears as a death form in the end of their potential disturbance of the common senses, customs, and dominant motifs of the cultural assemblages. The potential labor becomes unnoticeable, and the entity itself becomes unnoticeable too. Each new idea or being that has the potential of existence becomes the *düşük* through this haunting. Therefore, each future composition and future composer, or any instance of the individual's persona or inner-self is at risk of having this curse."

Bonang

Olfaction

ER Blk.

p

1:30 - 2'

3

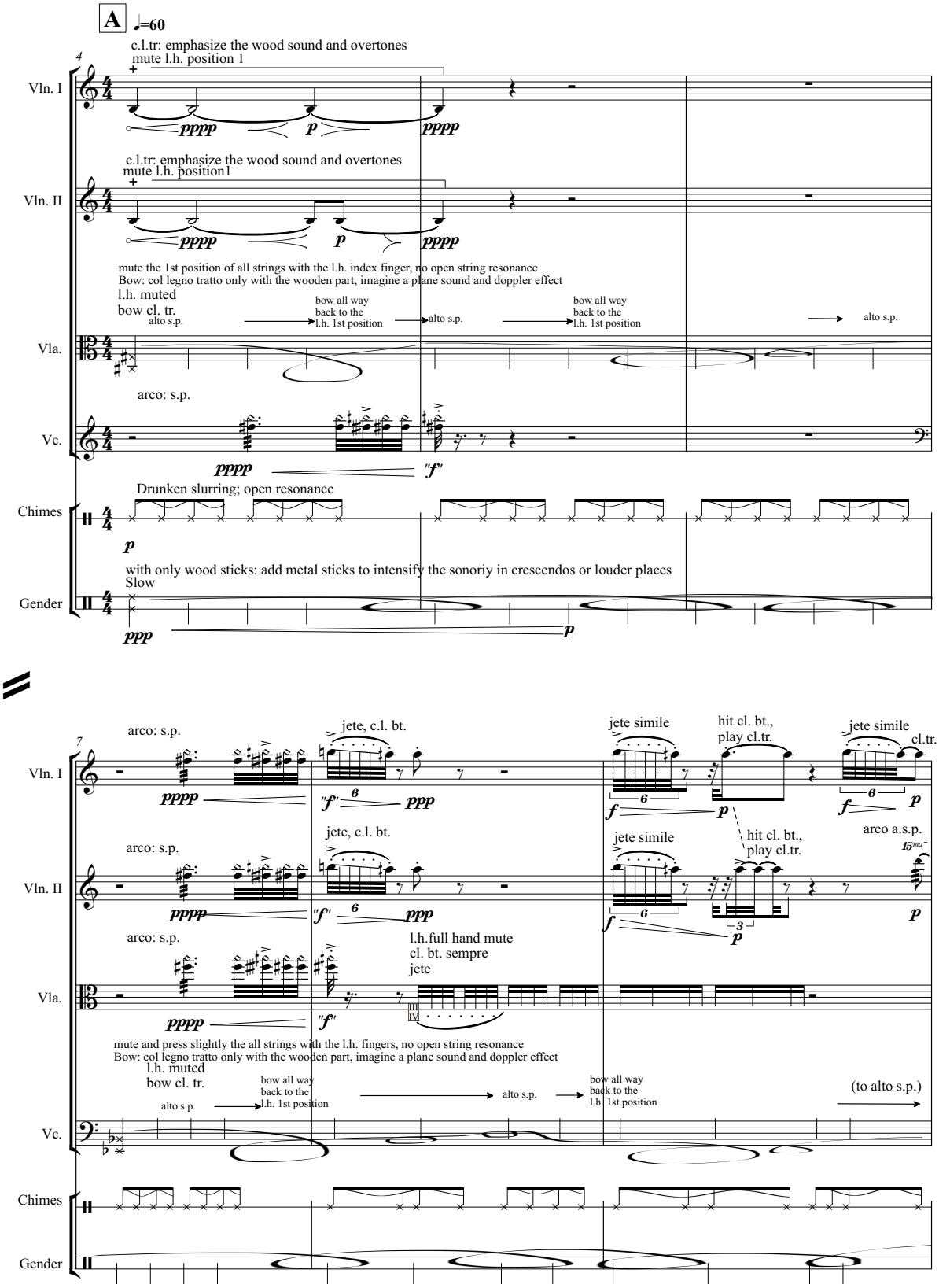
Vla.

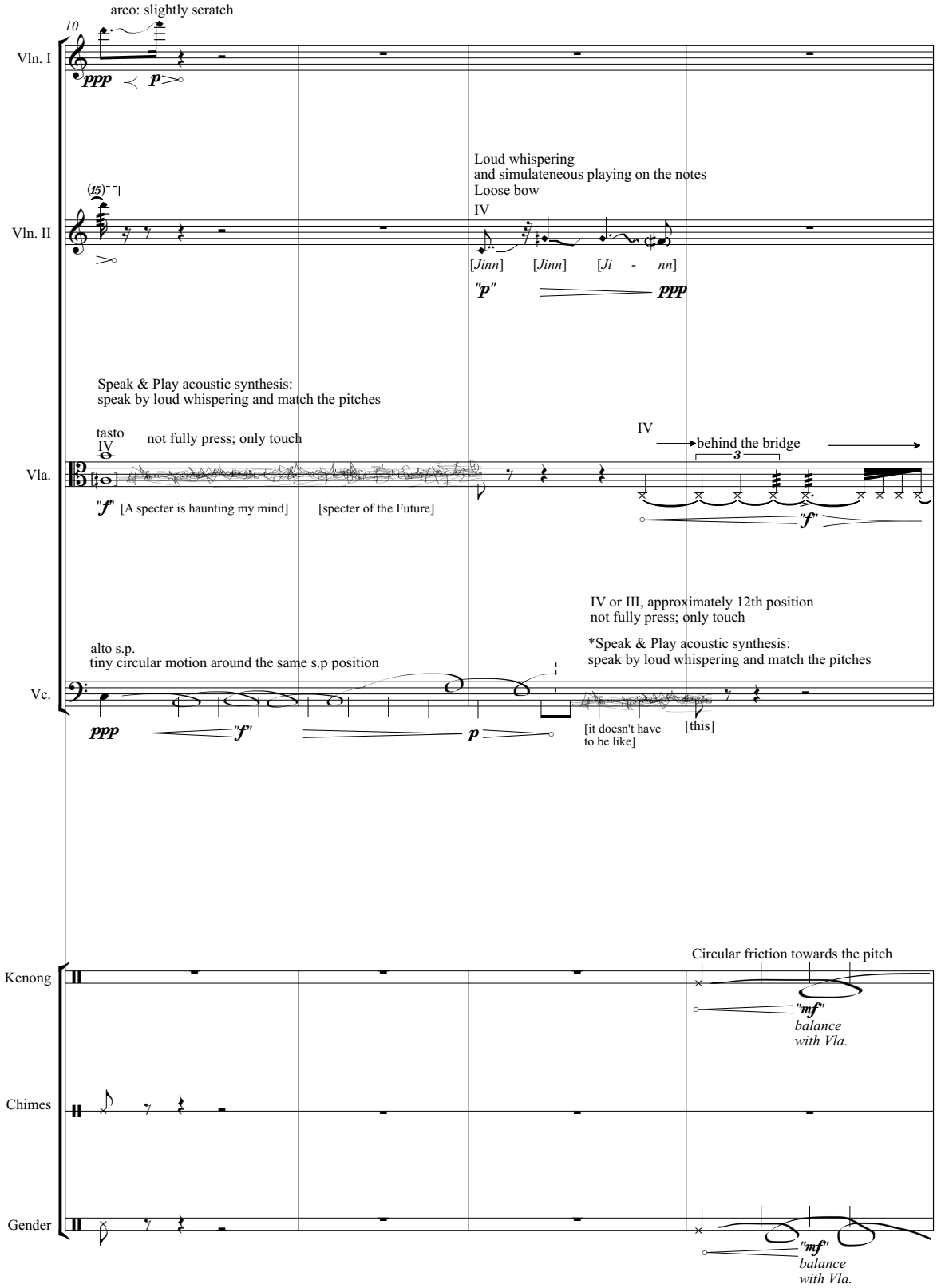
Narrator 1: "The future haunting the instant is not a simple behavior of redirecting or changing the next process. Its essence is not another ghost from the Old World; it is from the world that does not yet exist. This is why haunting by the future ghost is even more powerful than the haunting of the past ghost. The ghosts of the past can reach to the now. These ghosts can do the same from the future; the ghosts can come back from the future to create this new social cluster of multiple *düşük* in a very elaborate way by emancipating the ghosts from the origin. The ghost of the father Hamlet is a ghost from the past, arriving differently and more powerfully in terms of consciousness than the past origin. However, because it is in the instant, it is not strong enough to be able to change the things that already happened, nor the things that will be happen. The ghost of the future, on the other hand, is conscious of its temporal superiority; it haunts the entities before they are fully formed."

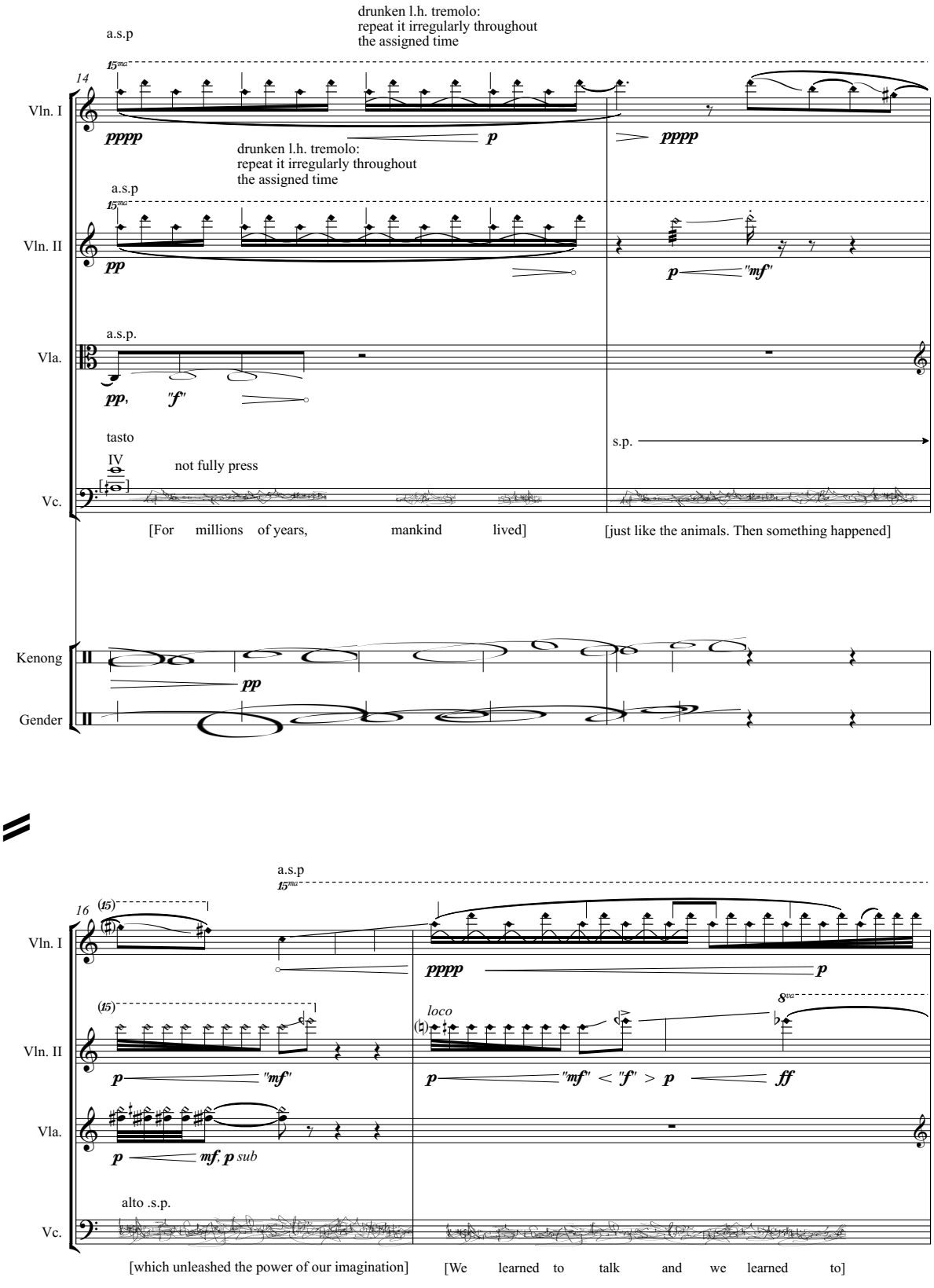
Bonang

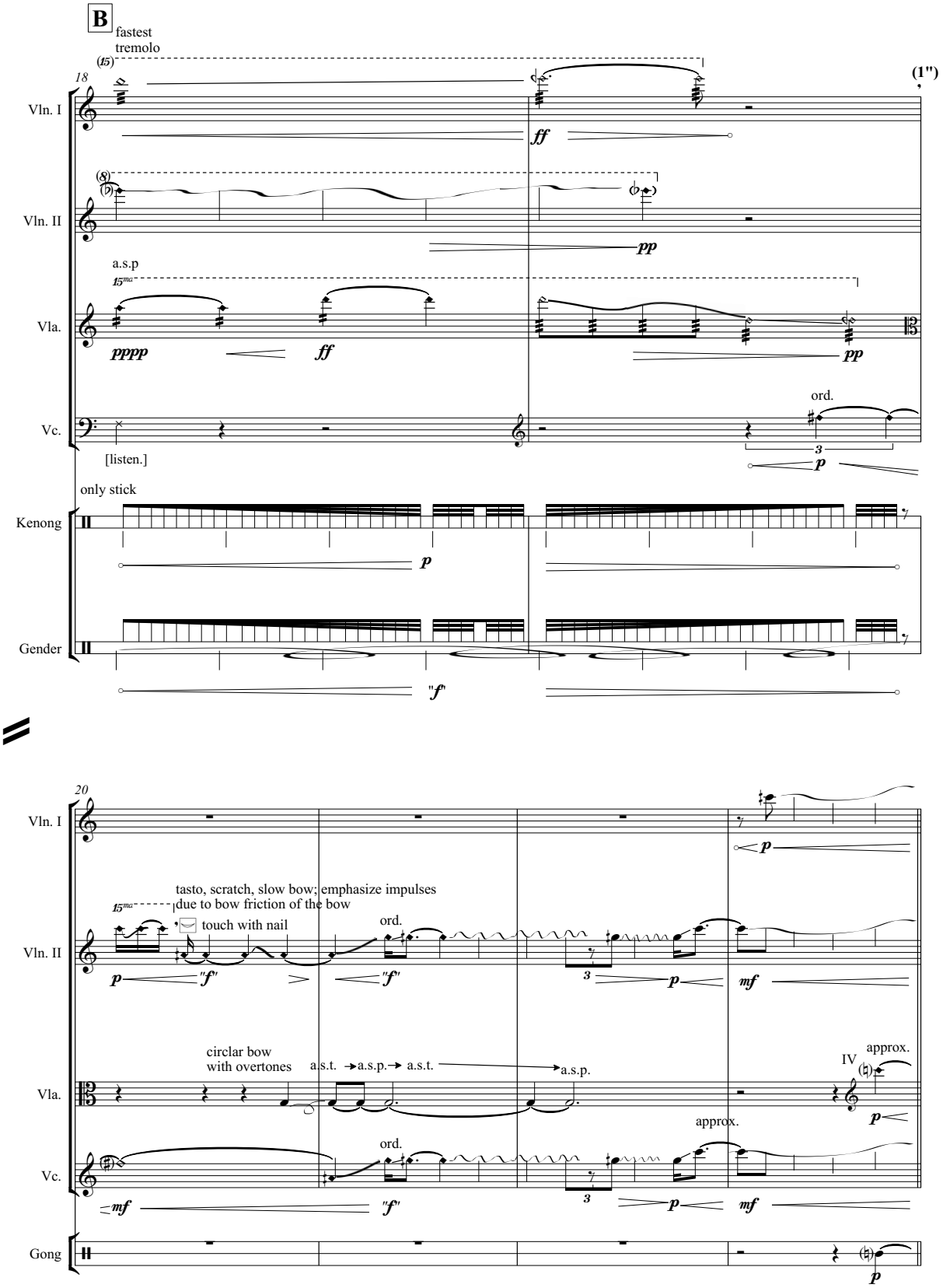
Olfaction

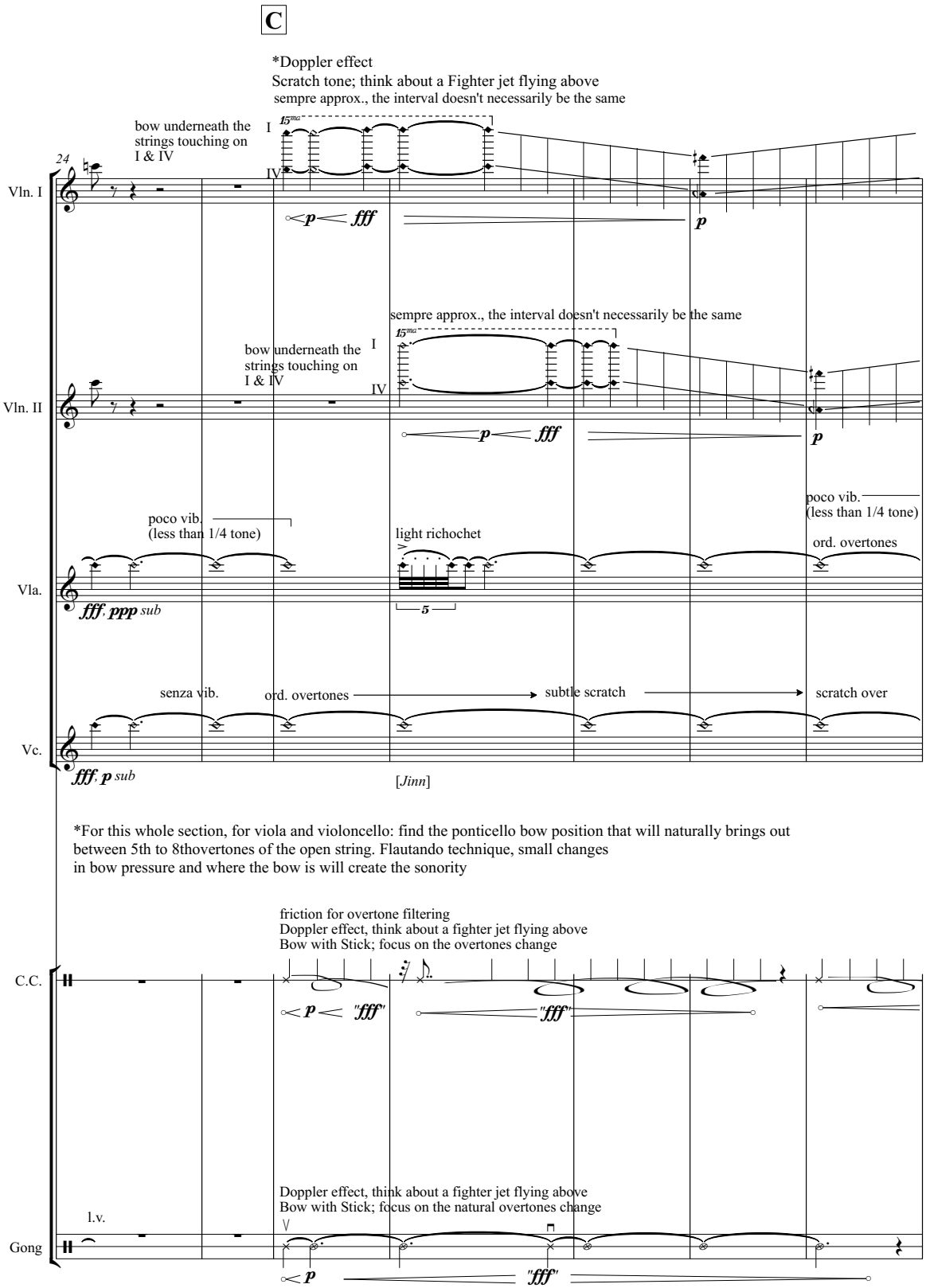
ER Blk.

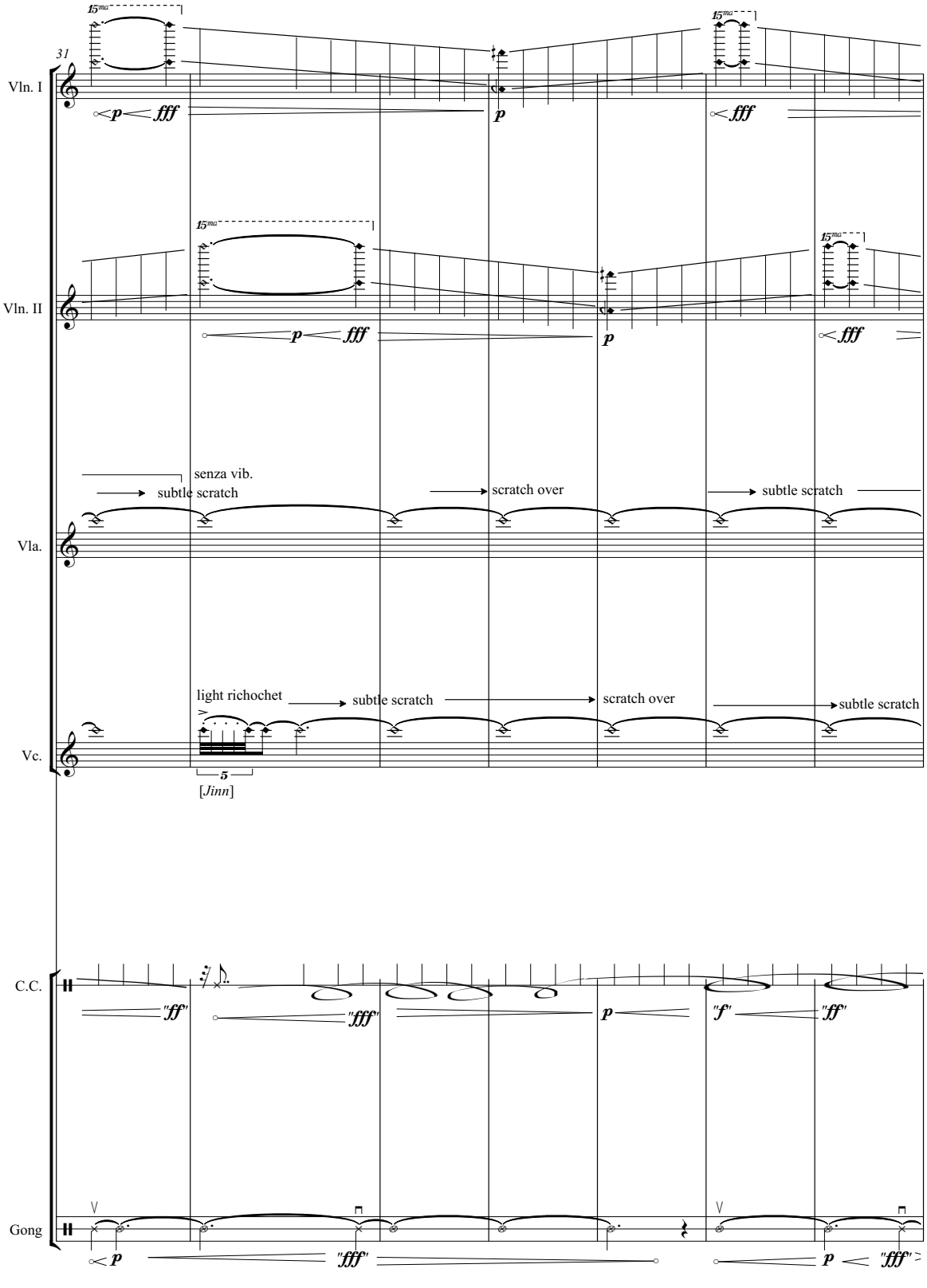

A
♩=60
c.l.tr: emphasize the wood sound and overtones
mute l.h. position 1
Vln. I
Vln. II
mute the 1st position of all strings with the l.h. index finger, no open string resonance
Bow: col legno tratto only with the wooden part, imagine a plane sound and doppler effect
l.h. muted
bow cl. tr.
alto s.p.
bow all way back to the l.h. 1st position
Vla.
arco: s.p.
Vc.
Drunken slurring; open resonance
Chimes
with only wood sticks: add metal sticks to intensify the sonoriy in crescendos or louder places
Slow
Gender
jete, c.l. bt.
jete simile
hit cl. bt., play cl.tr.
cl.tr.
arco a.s.p.
l.h.full hand mute
cl. bt. sempre
jete
(to alto s.p.)

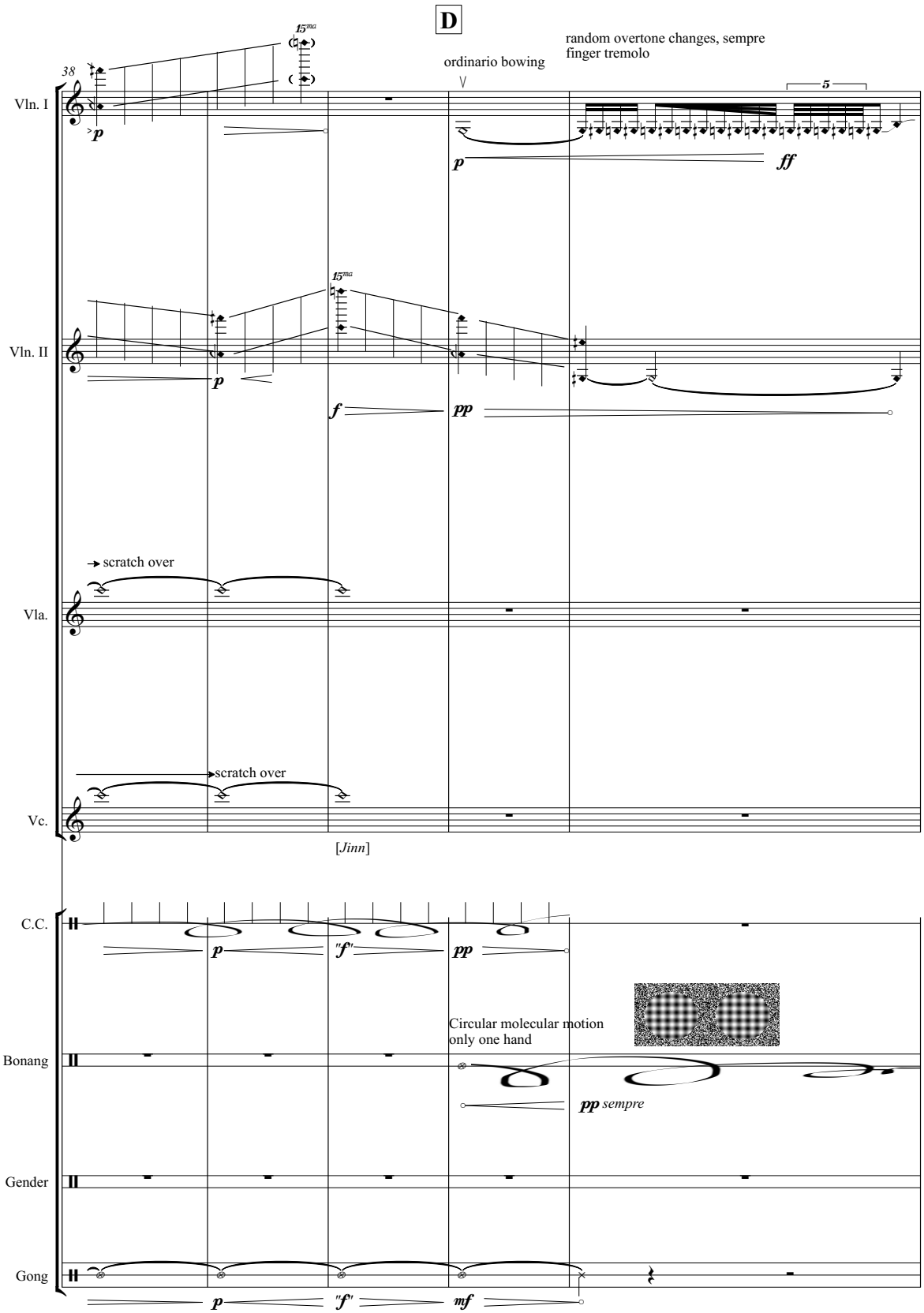

arco: slightly scratch
10
Vln. I
ppp
p
Loud whispering
and simulateneous playing on the notes
Loose bow
IV
Vln. II
[Jinn]
[Jinn]
[Ji - nn]
"p"
ppp
Speak & Play acoustic synthesis:
speak by loud whispering and match the pitches
tasto
IV
not fully press; only touch
IV
behind the bridge
3
Vla.
"f" [A specter is haunting my mind]
[specter of the Future]
"f"
IV or III, approximately 12th position
not fully press; only touch
*Speak & Play acoustic synthesis:
speak by loud whispering and match the pitches
alto s.p.
tiny circular motion around the same s.p position
Vc.
ppp
"f"
p
[it doesn't have
to be like]
[this]
Circular friction towards the pitch
Kenong
"mf"
balance
with Vla.
Chimes
Gender
"mf"
balance
with Vla.

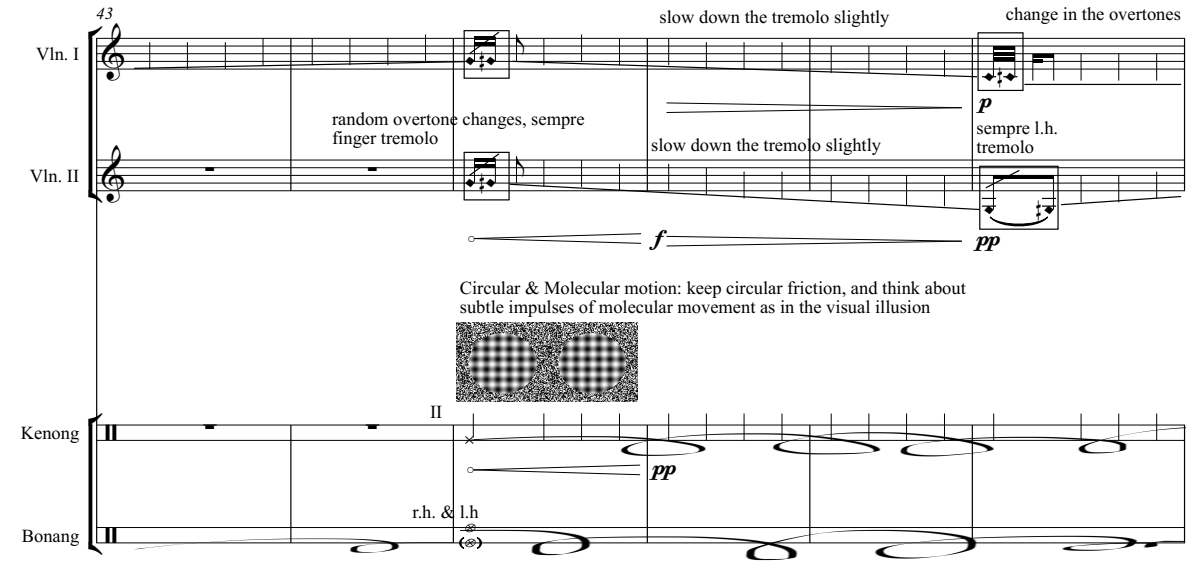

drunken l.h. tremolo:
repeat it irregularly throughout
the assigned time
a.s.p
14
Vln. I
pppp
p
pppp
drunken l.h. tremolo:
repeat it irregularly throughout
the assigned time
a.s.p
Vln. II
pp
p
"mf"
a.s.p.
Vla.
pp, "f"
tasto
IV
not fully press
s.p.
Vc.
[For millions of years, mankind lived]
[just like the animals. Then something happened]
Kenong
pp
Gender
a.s.p
16
Vln. I
pppp
p
Vln. II
p
"mf"
loco
p
"mf" < "f" > p
ff
Vla.
p
mf, p sub
alto .s.p.
Vc.
[which unleashed the power of our imagination]
[We learned to talk and we learned to]

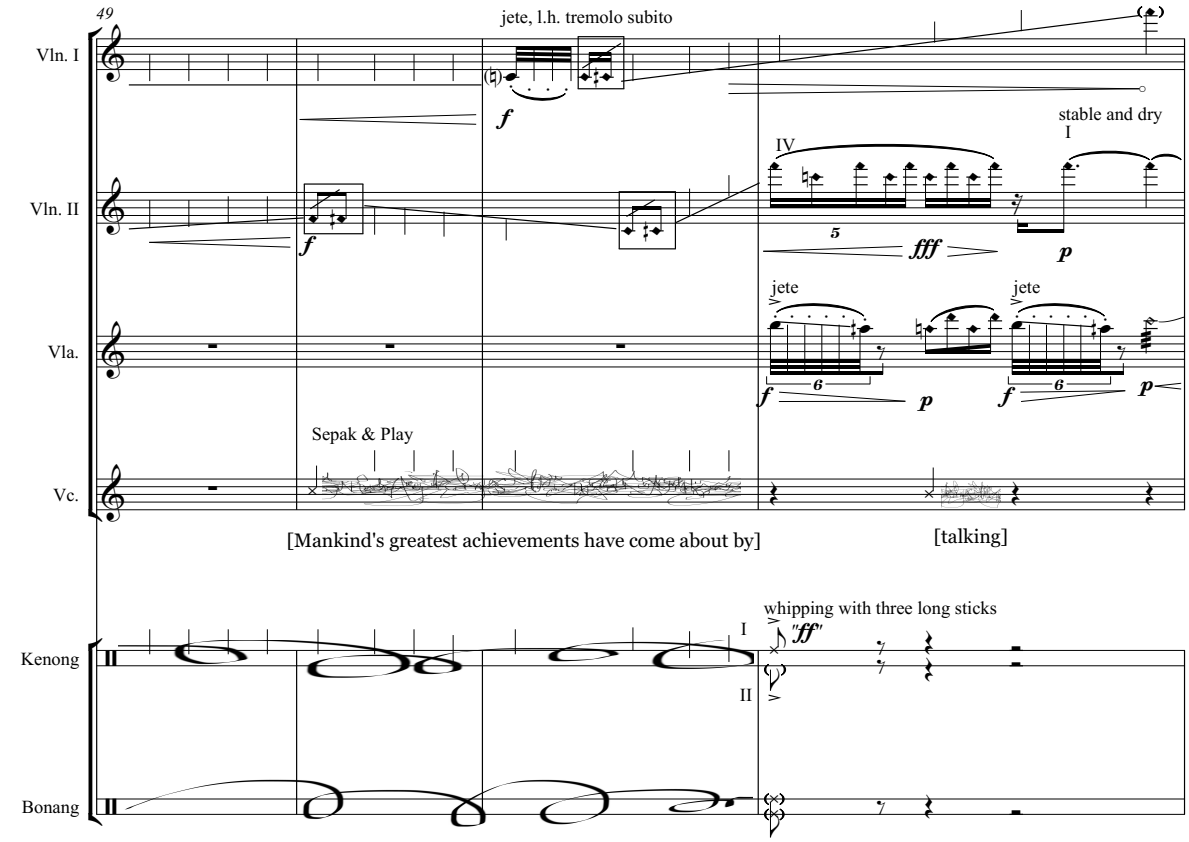

B
fastest
tremolo
(15)
18
(1")
Vln. I
ff
(8)
Vln. II
pp
a.s.p
15ma
Vla.
pppp
ff
pp
ord.
Vc.
[listen.]
3
p
only stick
Kenong
p
Gender
"f"
20
Vln. I
p
tasto, scratch, slow bow; emphasize impulses
due to bow friction of the bow
15ma
touch with nail
ord.
Vln. II
p
"f"
"f"
3
p
mf
circlar bow
with overtones
a.s.t.
a.s.p.
a.s.t.
a.s.p.
IV
approx.
Vla.
p
approx.
ord.
Vc.
mf
"f"
3
p
mf
Gong
p

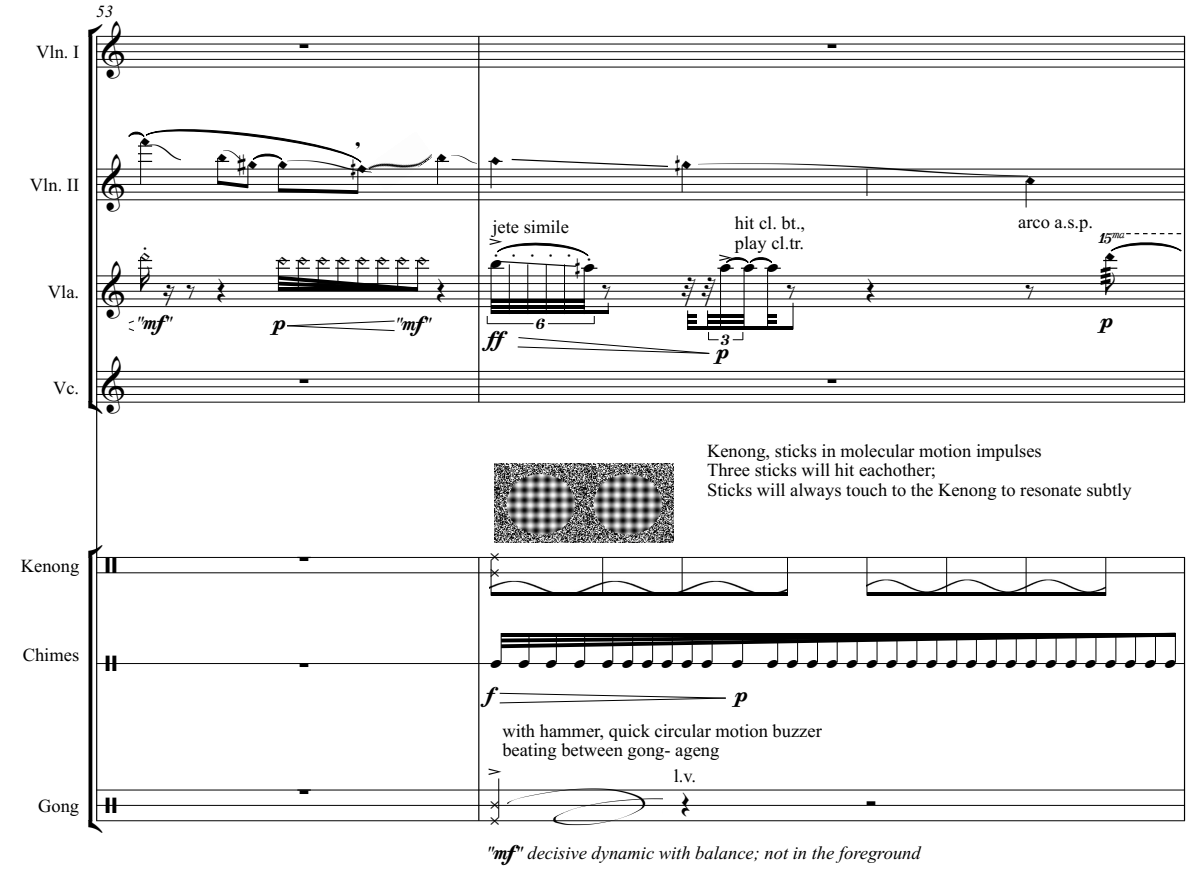

C
*Doppler effect
Scratch tone; think about a Fighter jet flying above
sempre approx., the interval doesn't necessarily be the same
bow underneath the strings touching on I & IV
I
IV
15ma
24
Vln. I
p fff p
sempre approx., the interval doesn't necessarily be the same
bow underneath the strings touching on I & IV
Vln. II
p fff p
poco vib. (less than 1/4 tone)
light richochet
ord. overtones
poco vib. (less than 1/4 tone)
Vla.
fff, ppp sub
5
senza vib.
ord. overtones
subtle scratch
scratch over
Vc.
fff, p sub
[Jinn]
*For this whole section, for viola and violoncello: find the ponticello bow position that will naturally brings out between 5th to 8thovertones of the open string. Flautando technique, small changes in bow pressure and where the bow is will create the sonority
friction for overtone filtering
Doppler effect, think about a fighter jet flying above
Bow with Stick; focus on the overtones change
C.C.
p "fff" "fff"
Doppler effect, think about a fighter jet flying above
Bow with Stick; focus on the natural overtones change
l.v.
Gong
p "fff"

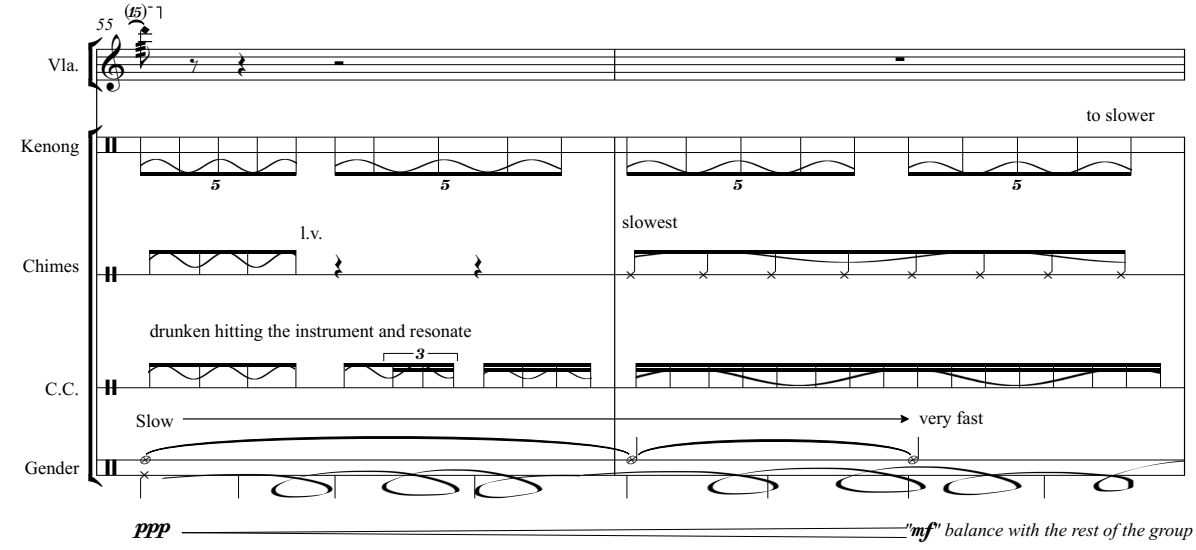

31
Vln. I
Vln. II
Vla.
Vc.
C.C.
Gong
15ma
p
fff
senza vib.
subtle scratch
scratch over
subtle scratch
light richochet
subtle scratch
scratch over
subtle scratch
5
[Jinn]
"ff"
"fff"
p
"f"
"ff"
p
"fff"
p
"fff"

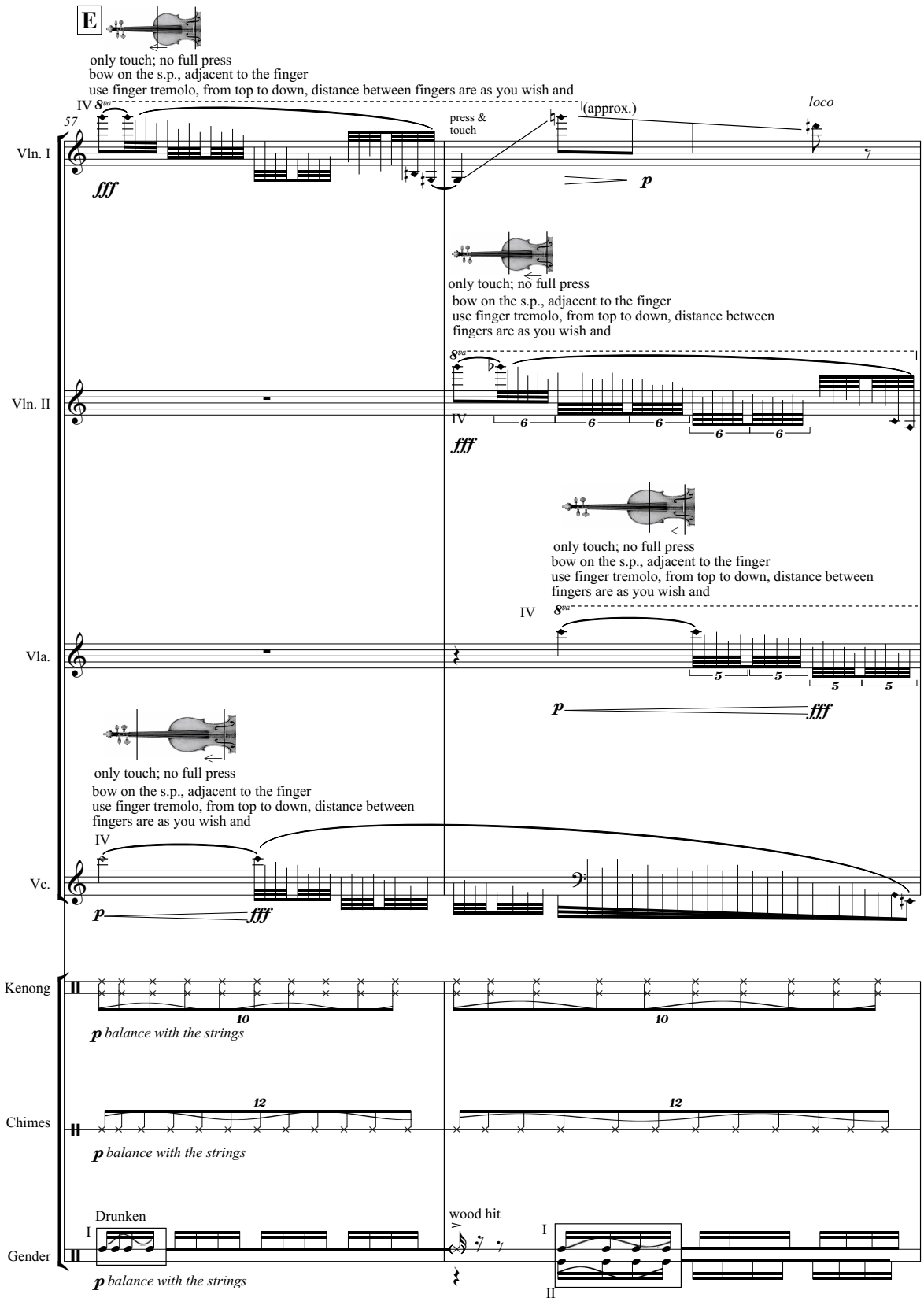

D
ordinario bowing
random overtone changes, sempre finger tremolo
38
Vln. I
Vln. II
Vla.
Vc.
C.C.
Bonang
Gender
Gong
scratch over
scratch over
[Jinn]
Circular molecular motion only one hand
pp sempre

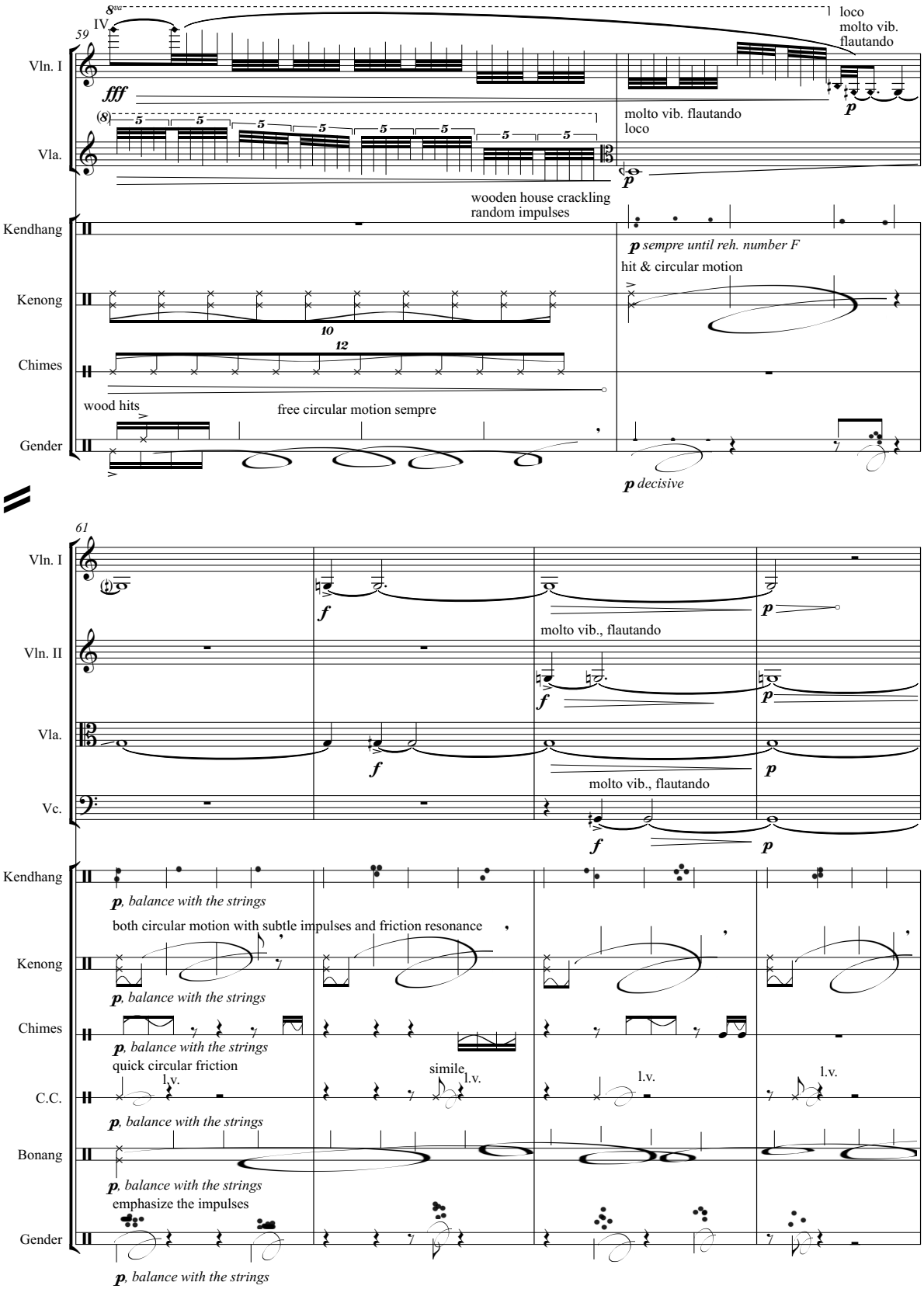

43
Vln. I
Vln. II
slow down the tremolo slightly
change in the overtones
random overtone changes, sempre finger tremolo
slow down the tremolo slightly
sempre l.h. tremolo
Circular & Molecular motion: keep circular friction, and think about subtle impulses of molecular movement as in the visual illusion
Kenong
Bonang
r.h. & l.h

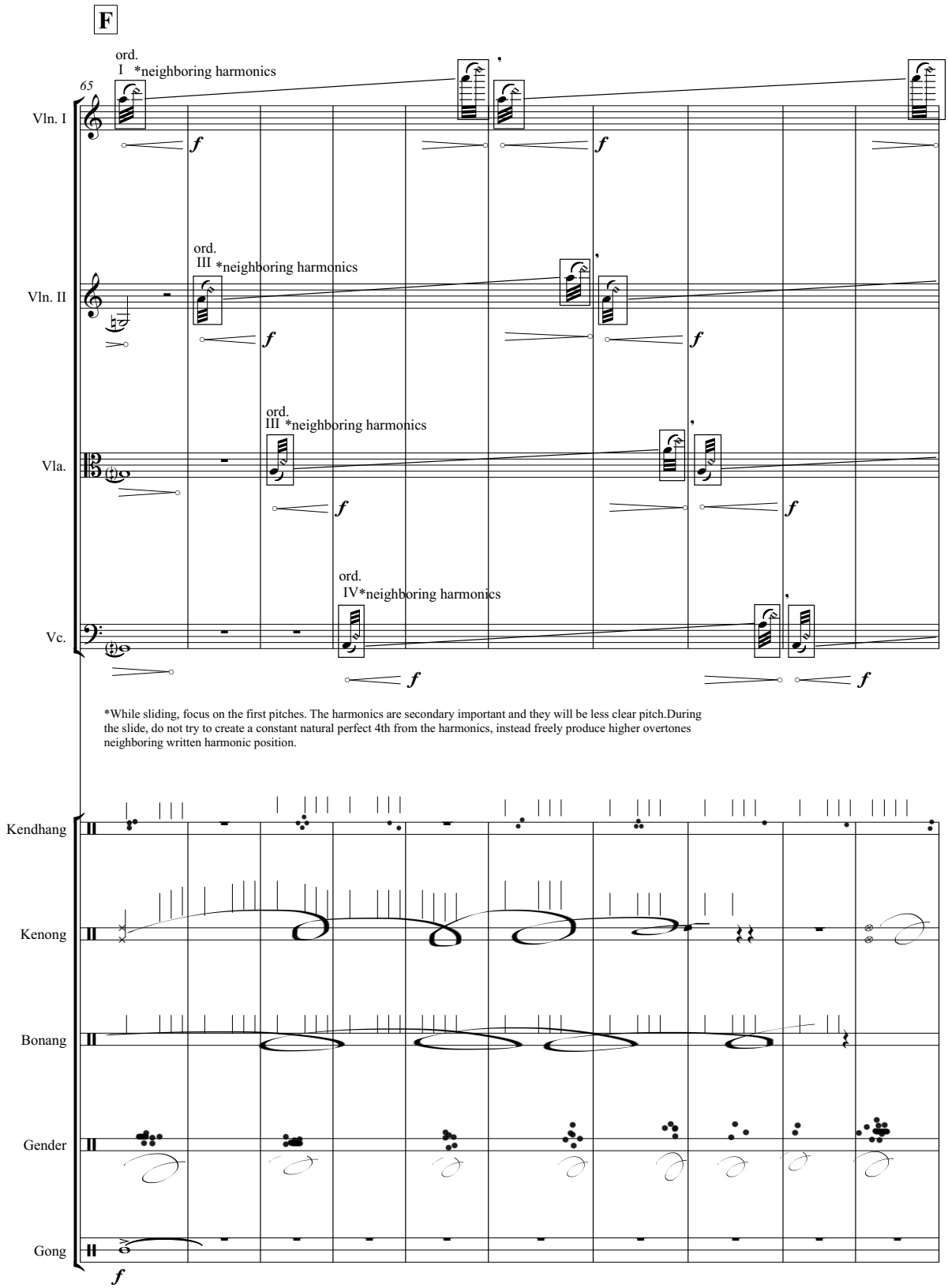

49
Vln. I
Vln. II
Vla.
Vc.
jete, l.h. tremolo subito
stable and dry
jete
jete
Sepak & Play
[Mankind's greatest achievements have come about by]
[talking]
Kenong
Bonang
whipping with three long sticks

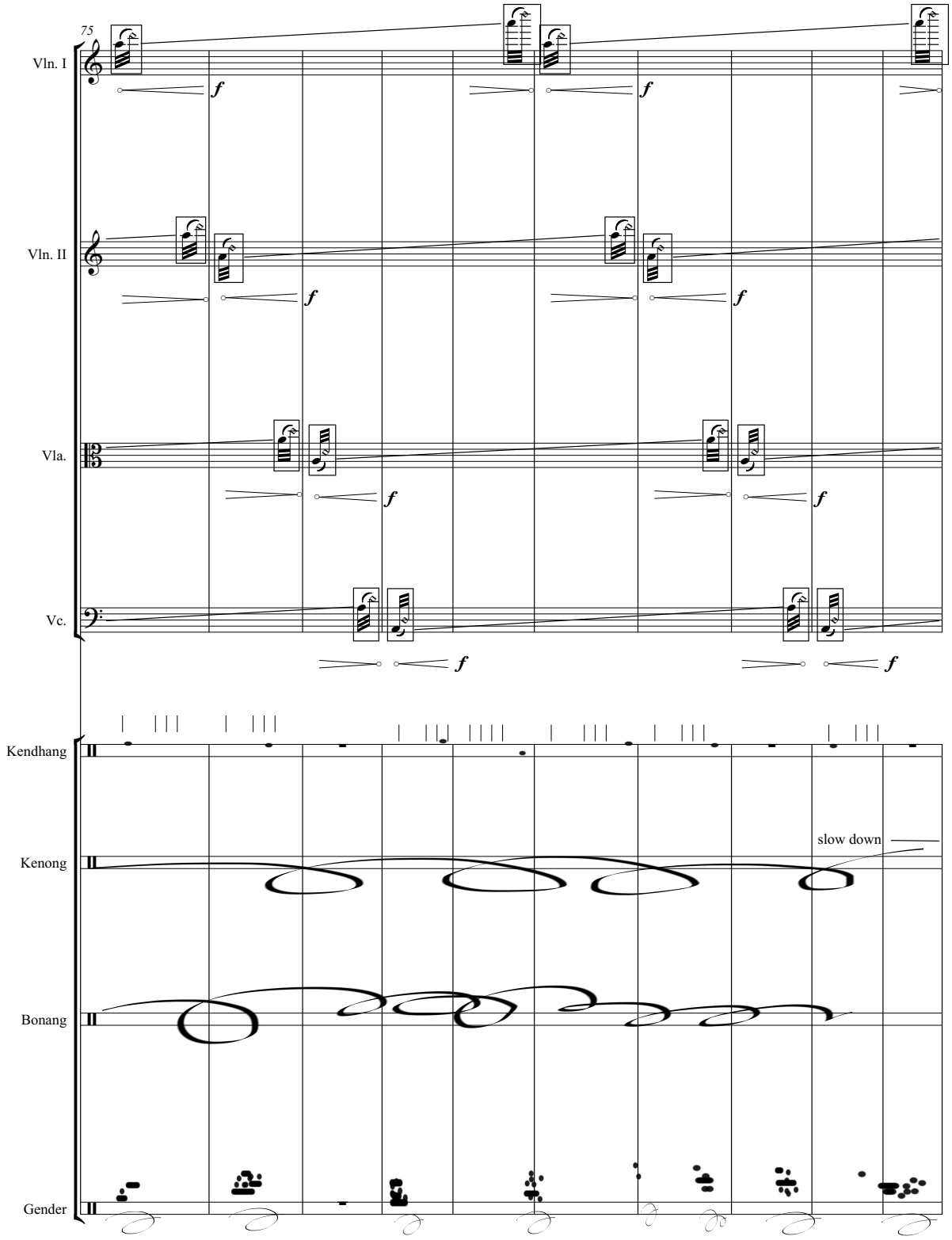

53
Vln. I
Vln. II
Vla.
Vc.
jete simile
hit cl. bt.,
play cl.tr.
arco a.s.p.
15ma
"mf"
p
"mf"
ff
6
3
p
p
Kenong, sticks in molecular motion impulses
Three sticks will hit eachother;
Sticks will always touch to the Kenong to resonate subtly
Kenong
Chimes
Gong
f
p
with hammer, quick circular motion buzzer
beating between gong- ageng
l.v.
"mf" decisive dynamic with balance; not in the foreground

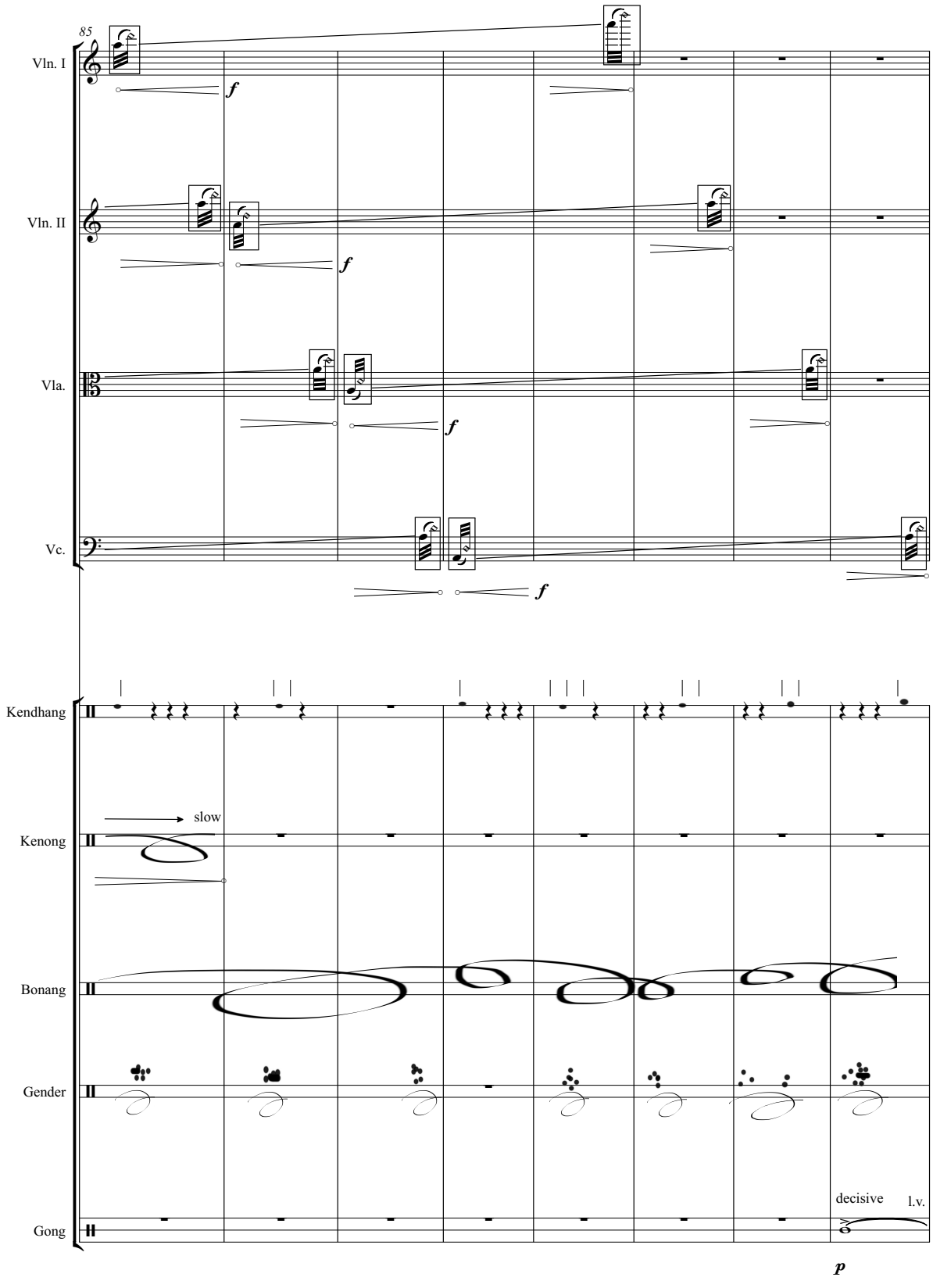

55
(15)
Vla.
Kenong
to slower
5
5
5
5
l.v.
slowest
Chimes
drunken hitting the instrument and resonate
3
C.C.
Slow
very fast
Gender
ppp
"mf" balance with the rest of the group

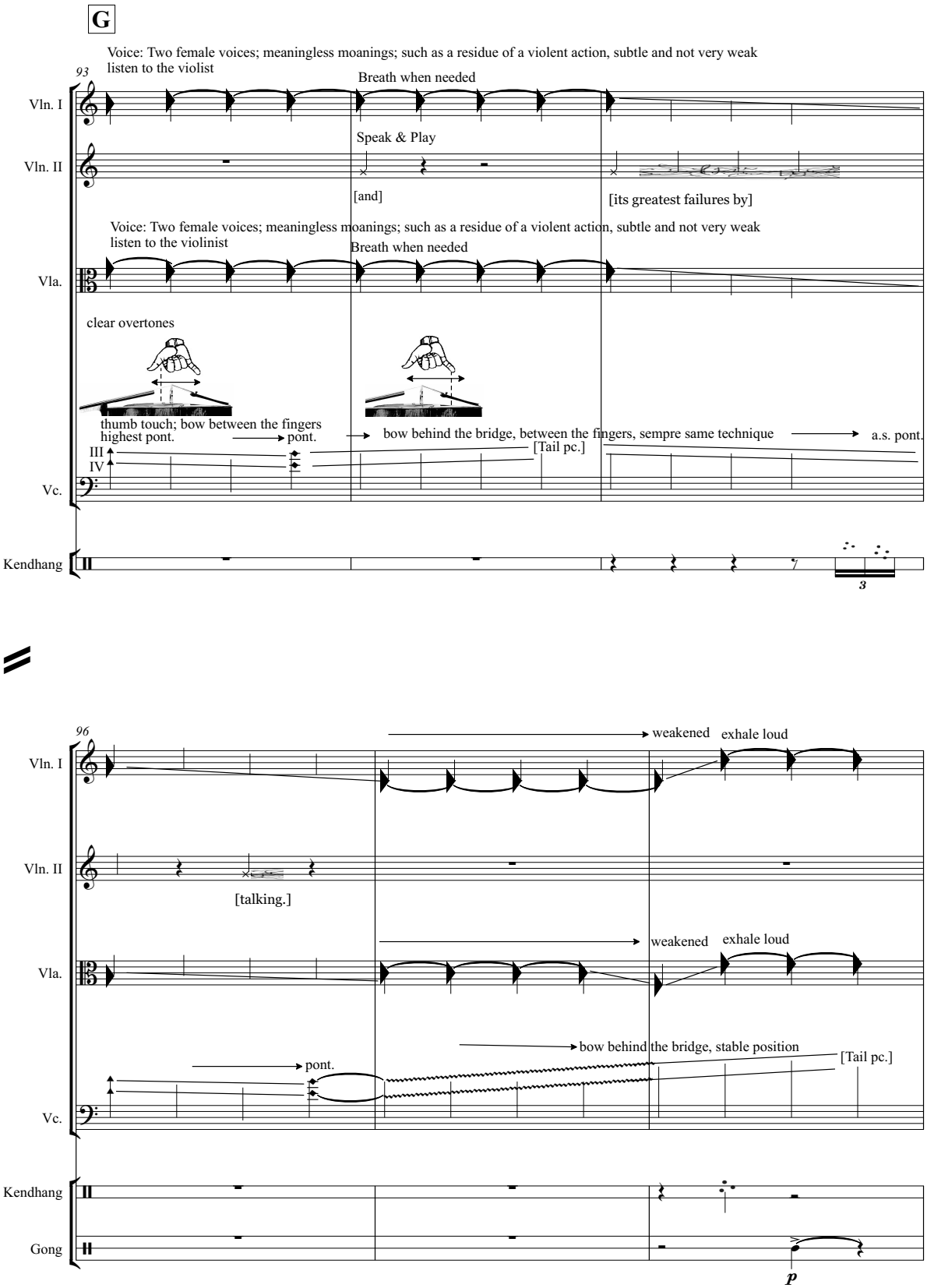

E
only touch; no full press
bow on the s.p., adjacent to the finger
use finger tremolo, from top to down, distance between fingers are as you wish and
IV 8va
57
press &
touch
(approx.)
loco
Vln. I
fff
p
only touch; no full press
bow on the s.p., adjacent to the finger
use finger tremolo, from top to down, distance between
fingers are as you wish and
8va
Vln. II
IV
6
fff
only touch; no full press
bow on the s.p., adjacent to the finger
use finger tremolo, from top to down, distance between
fingers are as you wish and
IV 8va
Vla.
5
p
fff
only touch; no full press
bow on the s.p., adjacent to the finger
use finger tremolo, from top to down, distance between
fingers are as you wish and
IV
Vc.
p
fff
Kenong
10
p balance with the strings
Chimes
12
p balance with the strings
Drunken
wood hit
I
II
Gender
p balance with the strings

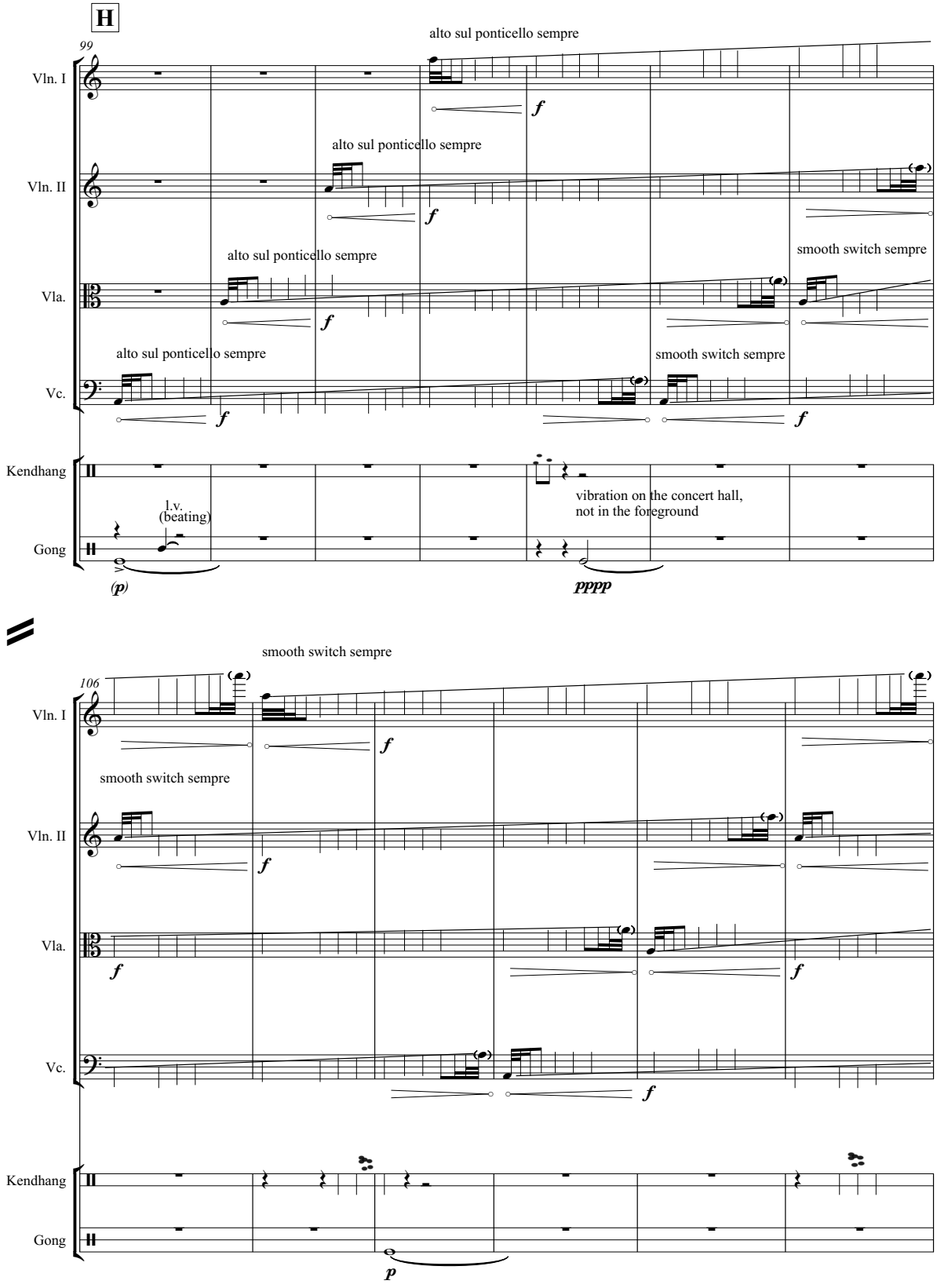

59
8va
IV
loco
molto vib.
flautando
Vln. I
fff
molto vib. flautando
loco
Vla.
wooden house crackling
random impulses
Kendhang
p sempre until reh. number F
hit & circular motion
Kenong
10
12
Chimes
wood hits
free circular motion sempre
Gender
p decisive
61
Vln. I
f
p
Vln. II
molto vib., flautando
Vla.
molto vib., flautando
Vc.
Kendhang
p, balance with the strings
both circular motion with subtle impulses and friction resonance
Kenong
Chimes
quick circular friction
simile
l.v.
C.C.
Bonang
emphasize the impulses
Gender

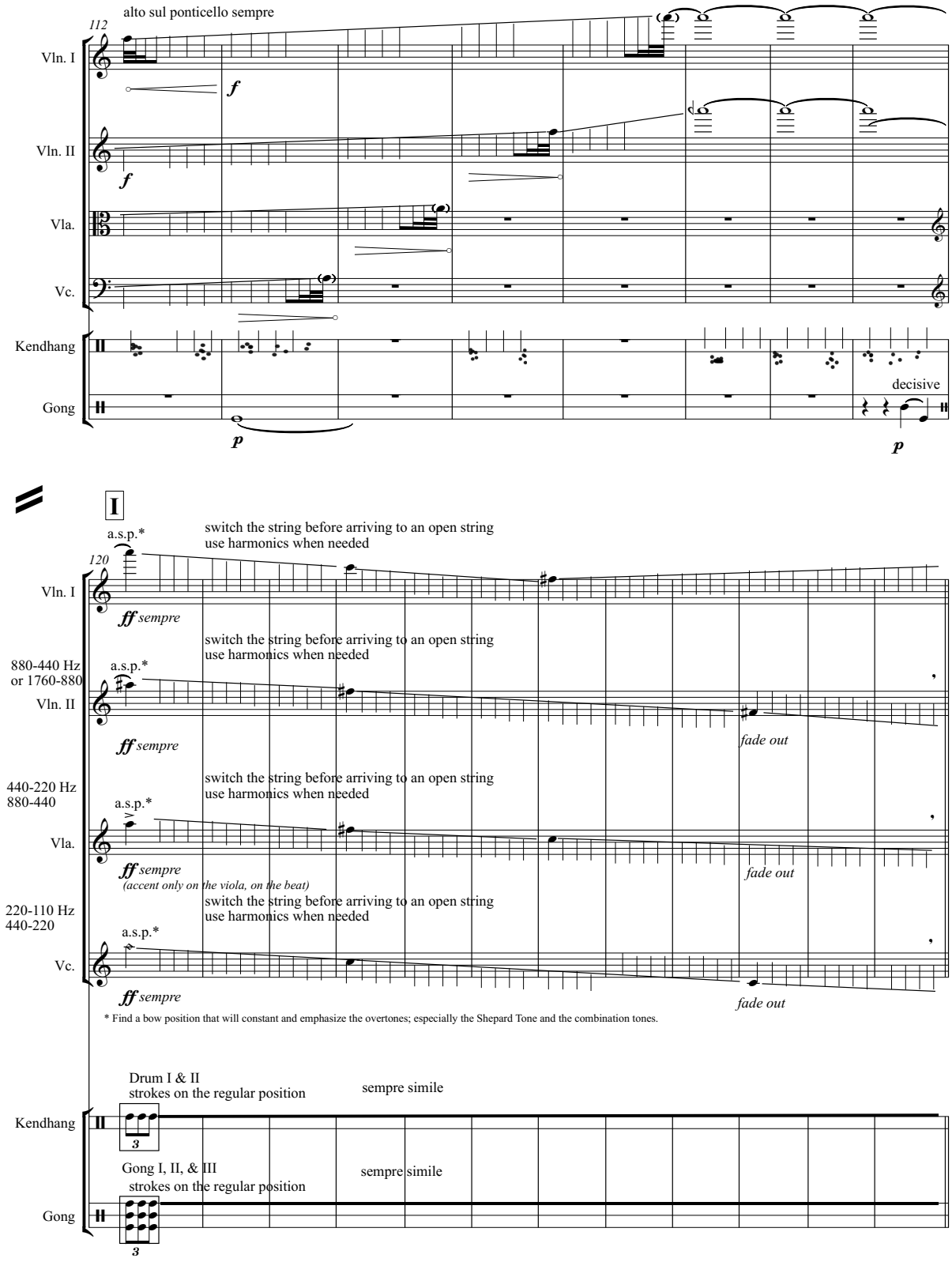

F
65
ord.
I *neighboring harmonics
Vln. I
Vln. II
ord.
III *neighboring harmonics
Vla.
ord.
III *neighboring harmonics
Vc.
ord.
IV*neighboring harmonics
f
*While sliding, focus on the first pitches. The harmonics are secondary important and they will be less clear pitch.During the slide, do not try to create a constant natural perfect 4th from the harmonics, instead freely produce higher overtones neighboring written harmonic position.
Kendhang
Kenong
Bonang
Gender
Gong

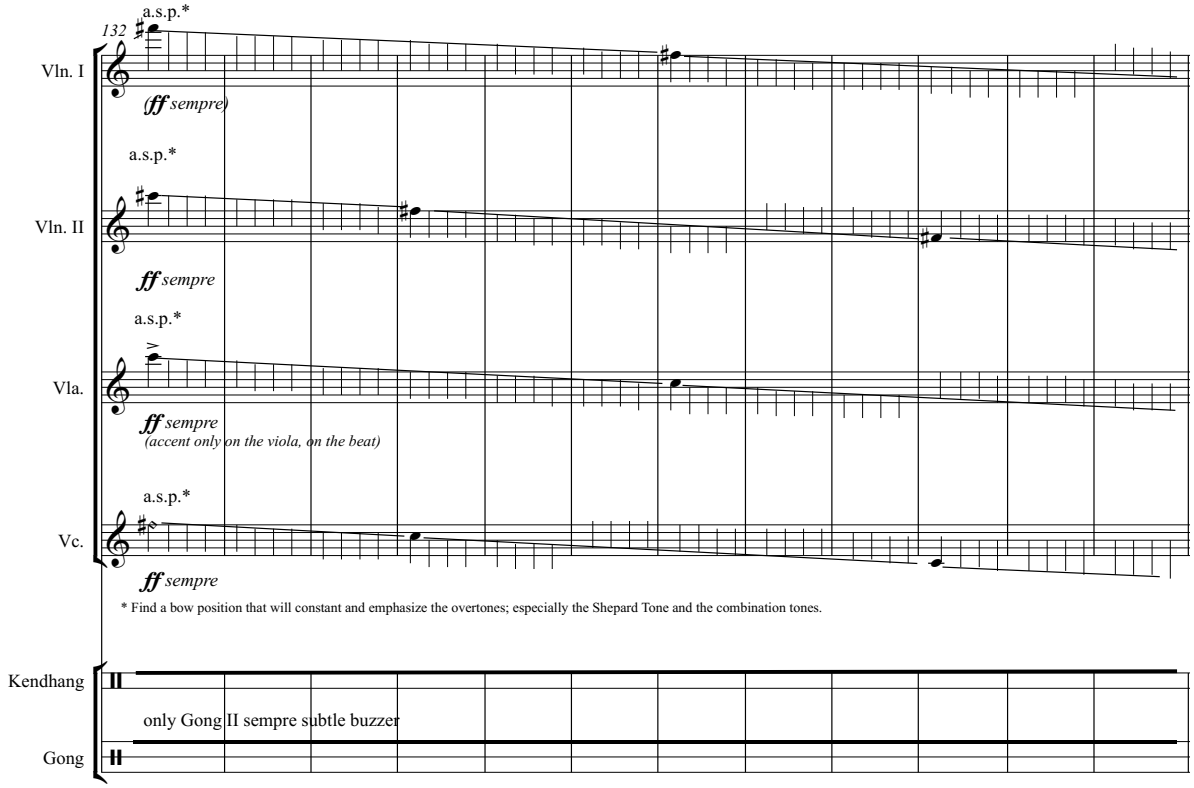

75
Vln. I
Vln. II
Vla.
Vc.
Kendhang
Kenong
Bonang
Gender
slow down

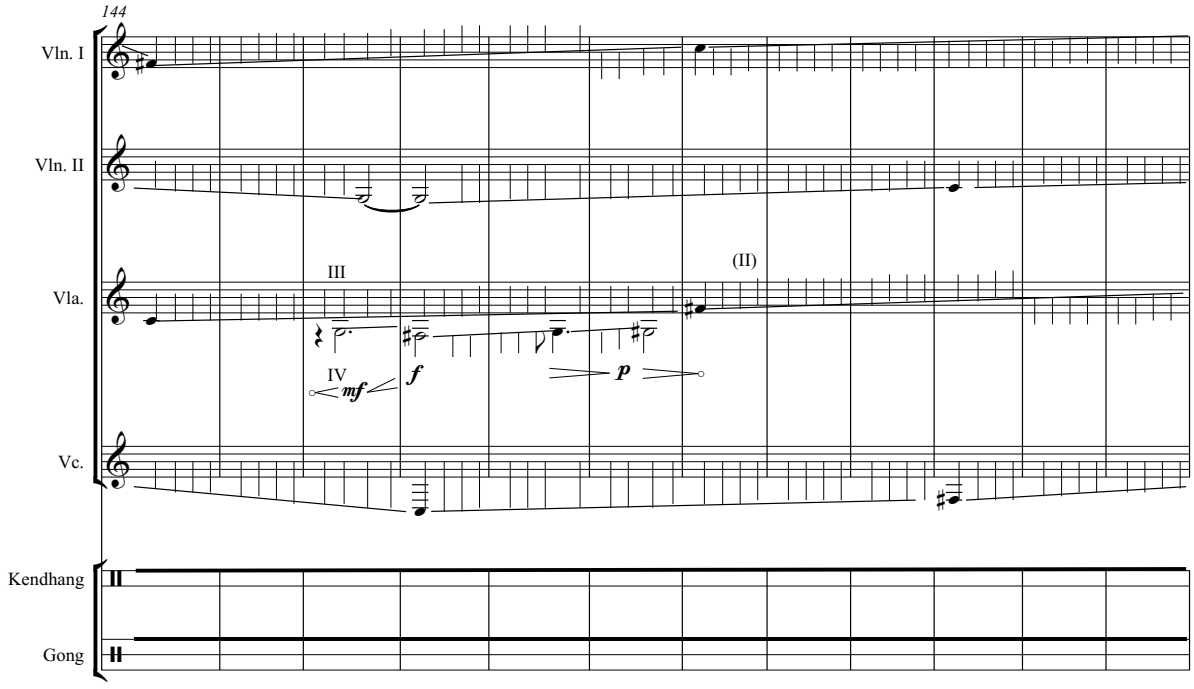

85
Vln. I
Vln. II
Vla.
Vc.
f
Kendhang
Kenong
slow
Bonang
Gender
Gong
decisive
l.v.
p

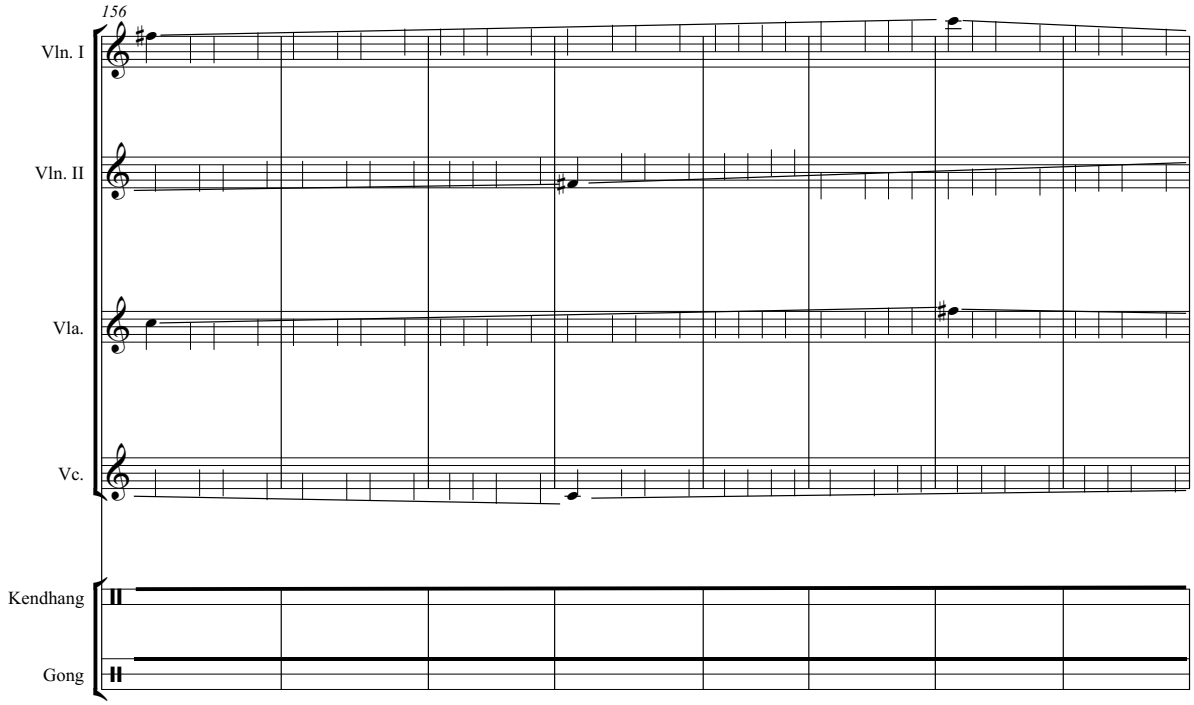

G
Voice: Two female voices; meaningless moanings; such as a residue of a violent action, subtle and not very weak
listen to the violist
93
Breath when needed
Vln. I
Speak & Play
Vln. II
[and]
[its greatest failures by]
Voice: Two female voices; meaningless moanings; such as a residue of a violent action, subtle and not very weak
listen to the violinist
Breath when needed
Vla.
clear overtones
thumb touch; bow between the fingers
highest pont.
pont.
bow behind the bridge, between the fingers, sempre same technique
[Tail pc.]
a.s. pont.
III
IV
Vc.
Kendhang
3
96
weakened
exhale loud
Vln. I
Vln. II
[talking.]
weakened
exhale loud
Vla.
bow behind the bridge, stable position
[Tail pc.]
pont.
Vc.
Kendhang
Gong
p

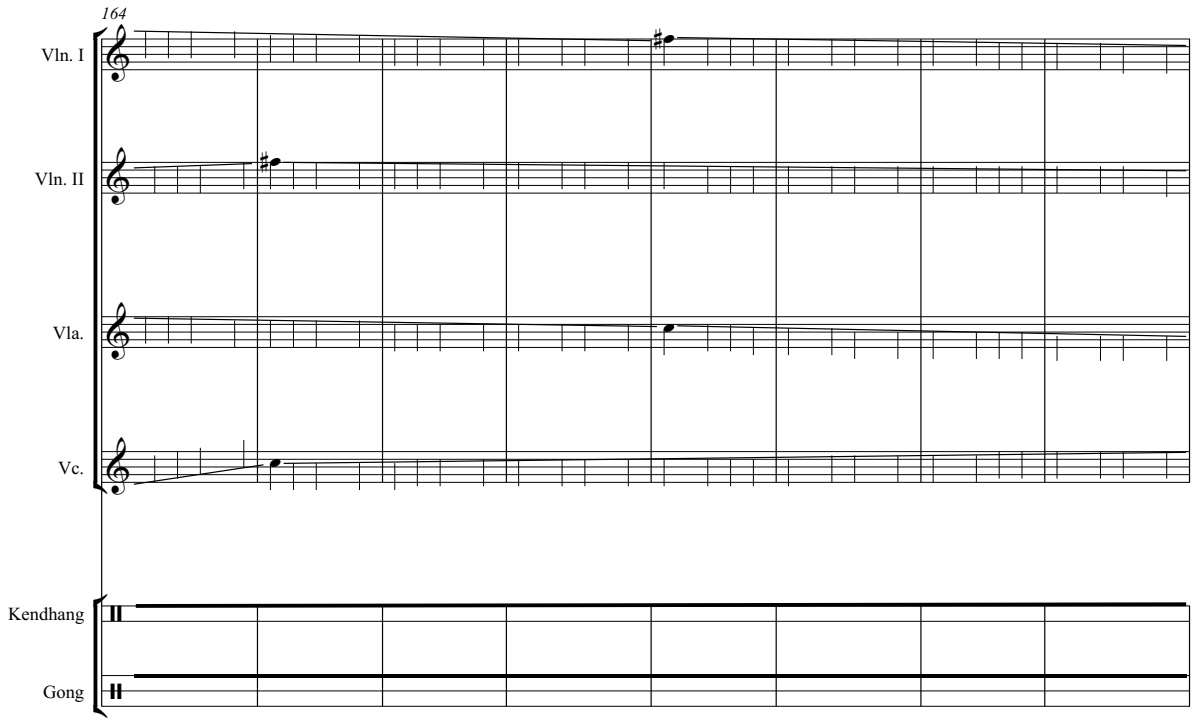

H
99
alto sul ponticello sempre
Vln. I
Vln. II
Vla.
Vc.
Kendhang
Gong
alto sul ponticello sempre
alto sul ponticello sempre
smooth switch sempre
alto sul ponticello sempre
smooth switch sempre
l.v.
(beating)
vibration on the concert hall,
not in the foreground
(p)
pppp
106
smooth switch sempre
smooth switch sempre
p

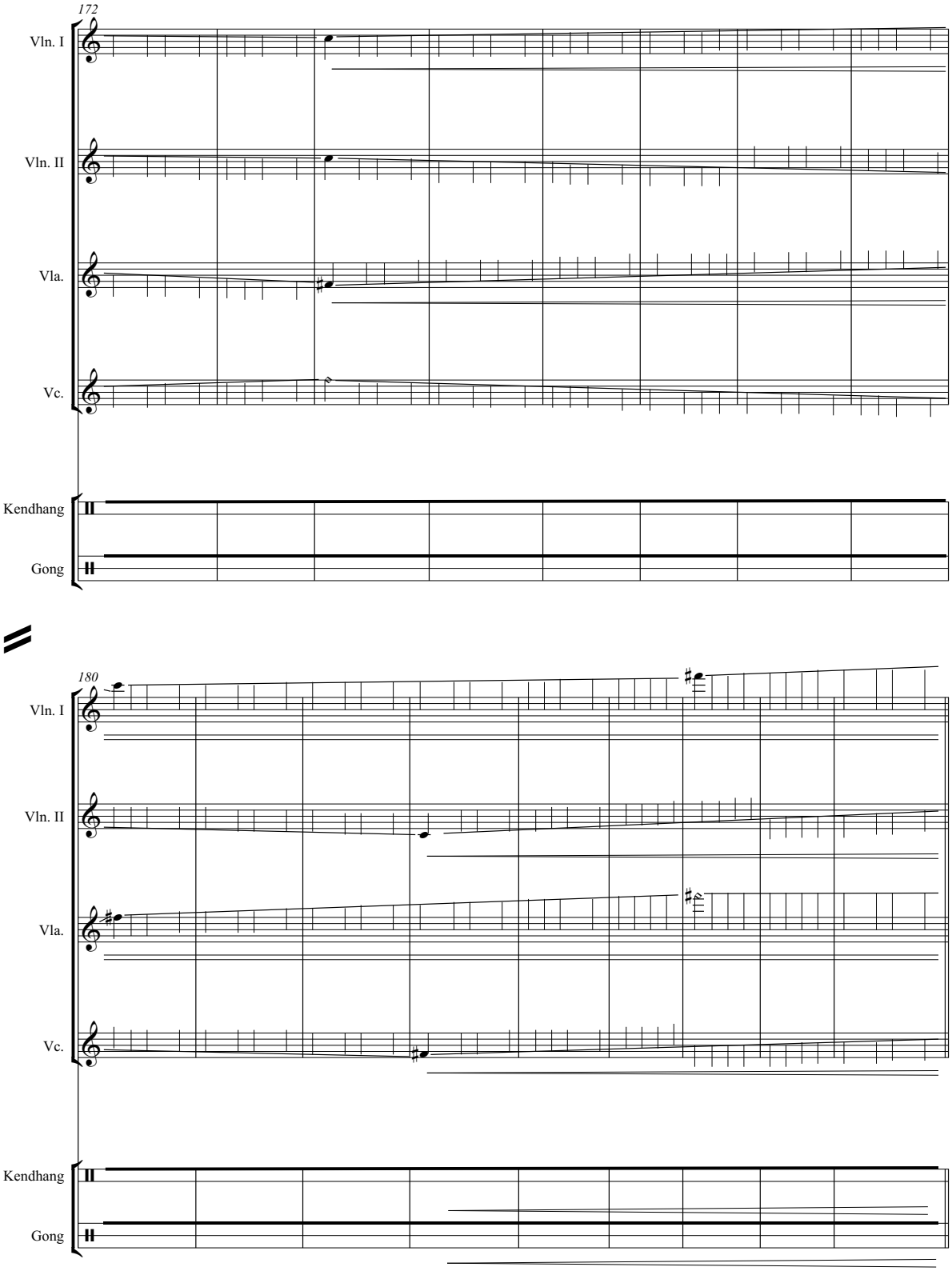

alto sul ponticello sempre
112
Vln. I
Vln. II
Vla.
Vc.
Kendhang
Gong
f
f
p
decisive
p
I
a.s.p.*
switch the string before arriving to an open string
use harmonics when needed
120
Vln. I
ff sempre
880-440 Hz
or 1760-880
Vln. II
ff sempre
fade out
440-220 Hz
880-440
Vla.
ff sempre
(accent only on the viola, on the beat)
fade out
220-110 Hz
440-220
Vc.
ff sempre
fade out
* Find a bow position that will constant and emphasize the overtones; especially the Shepard Tone and the combination tones.
Drum I & II
strokes on the regular position
sempre simile
Kendhang
3
Gong I, II, & III
strokes on the regular position
sempre simile
Gong
3

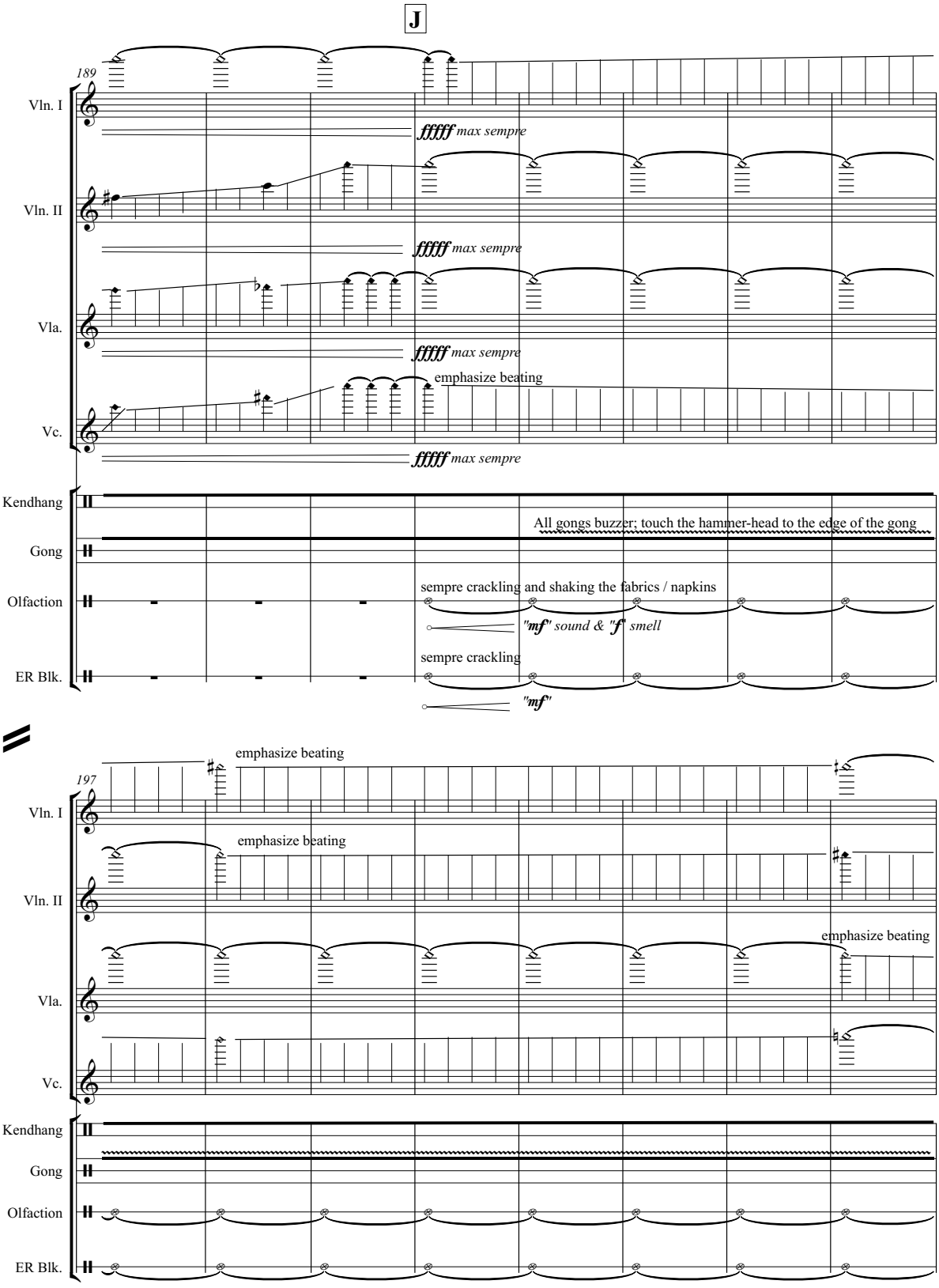

132
a.s.p.*
Vln. I
(ff sempre)
a.s.p.*
Vln. II
ff sempre
a.s.p.*
Vla.
ff sempre
(accent only on the viola, on the beat)
a.s.p.*
Vc.
ff sempre
* Find a bow position that will constant and emphasize the overtones; especially the Shepard Tone and the combination tones.
Kendhang
only Gong II sempre subtle buzzer
Gong

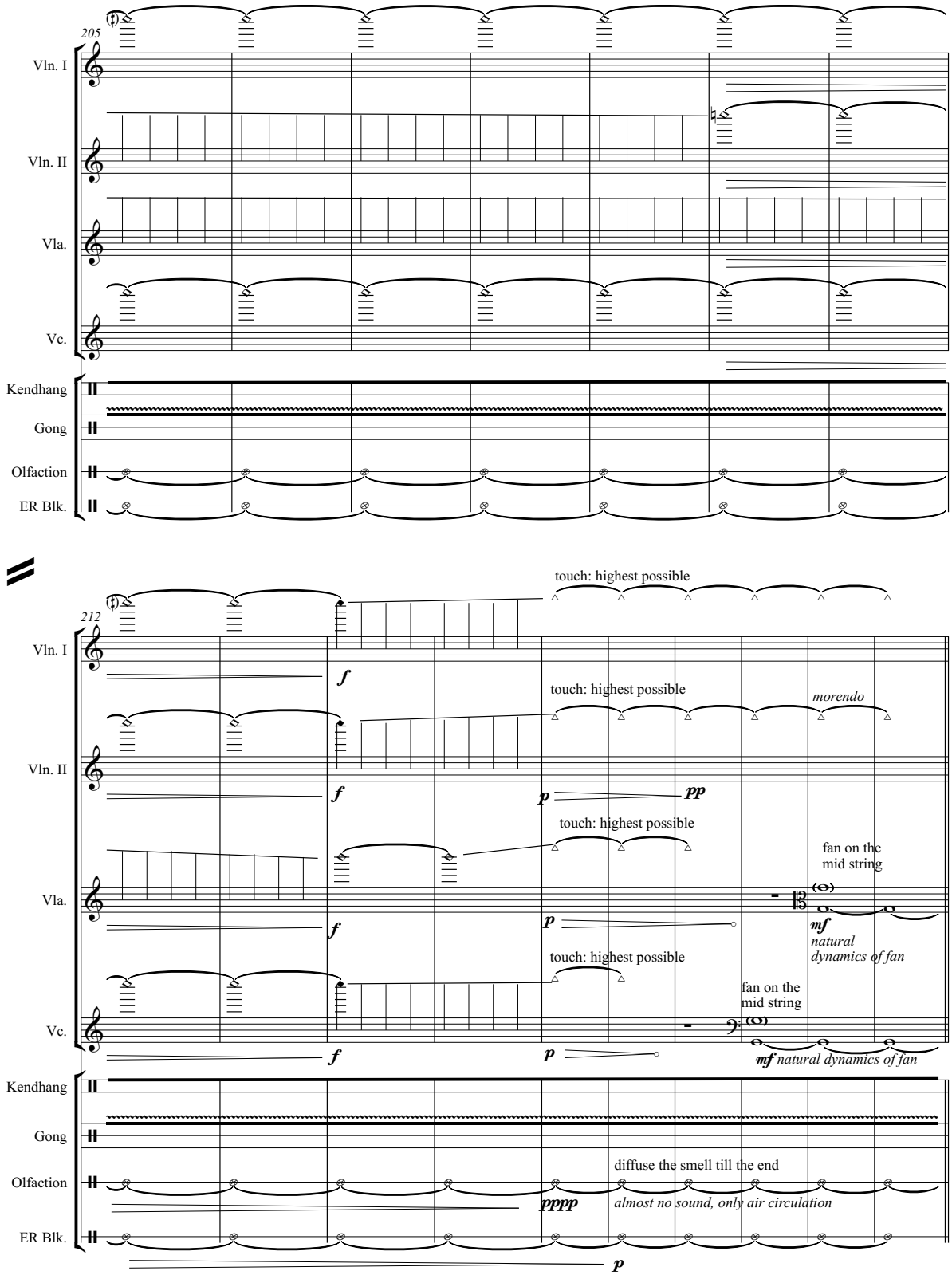

144
Vln. I
Vln. II
Vla.
III
(II)
IV
mf
f
p
Vc.
Kendhang
Gong

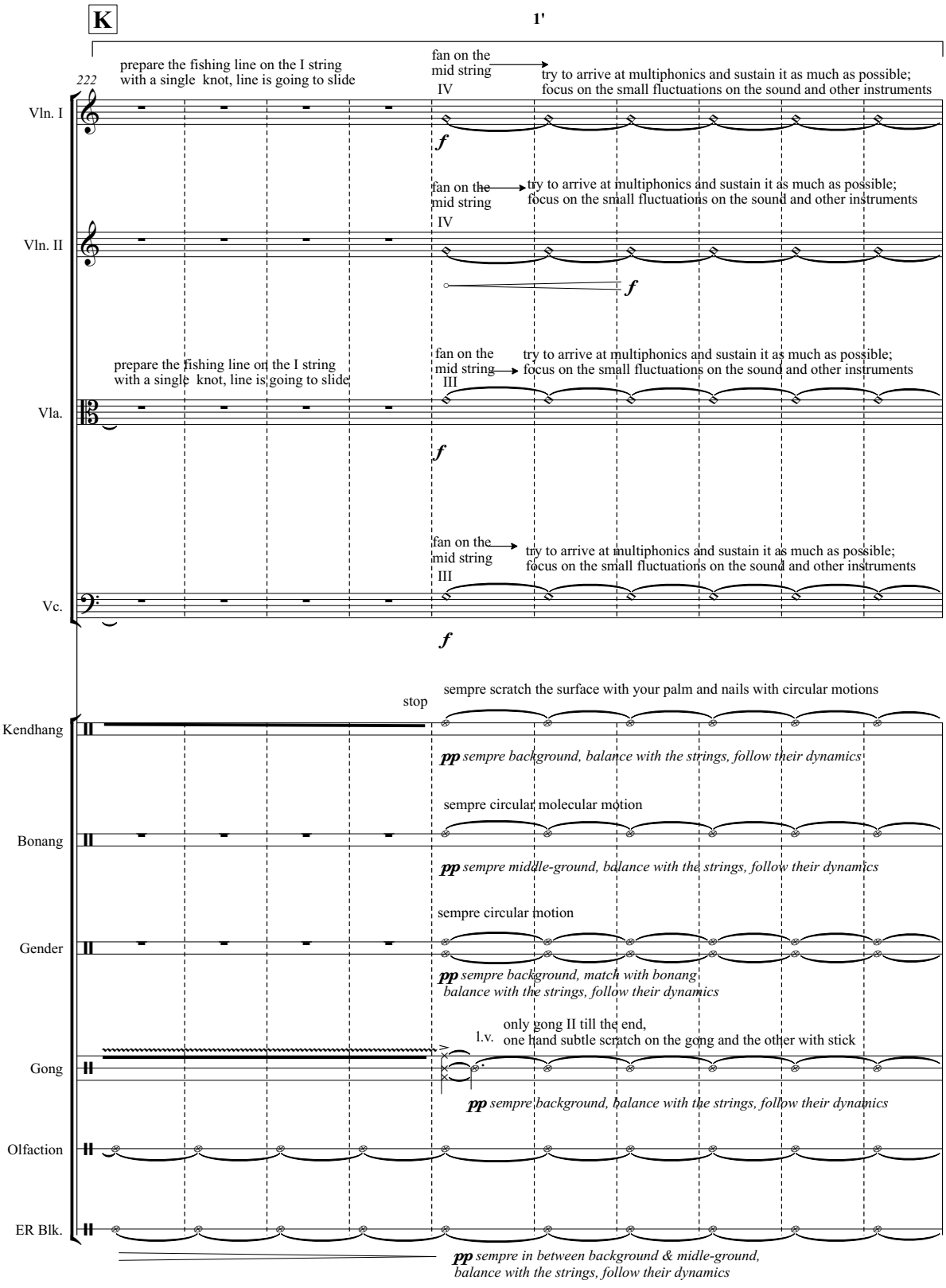

156
Vln. I
Vln. II
Vla.
Vc.
Kendhang
Gong

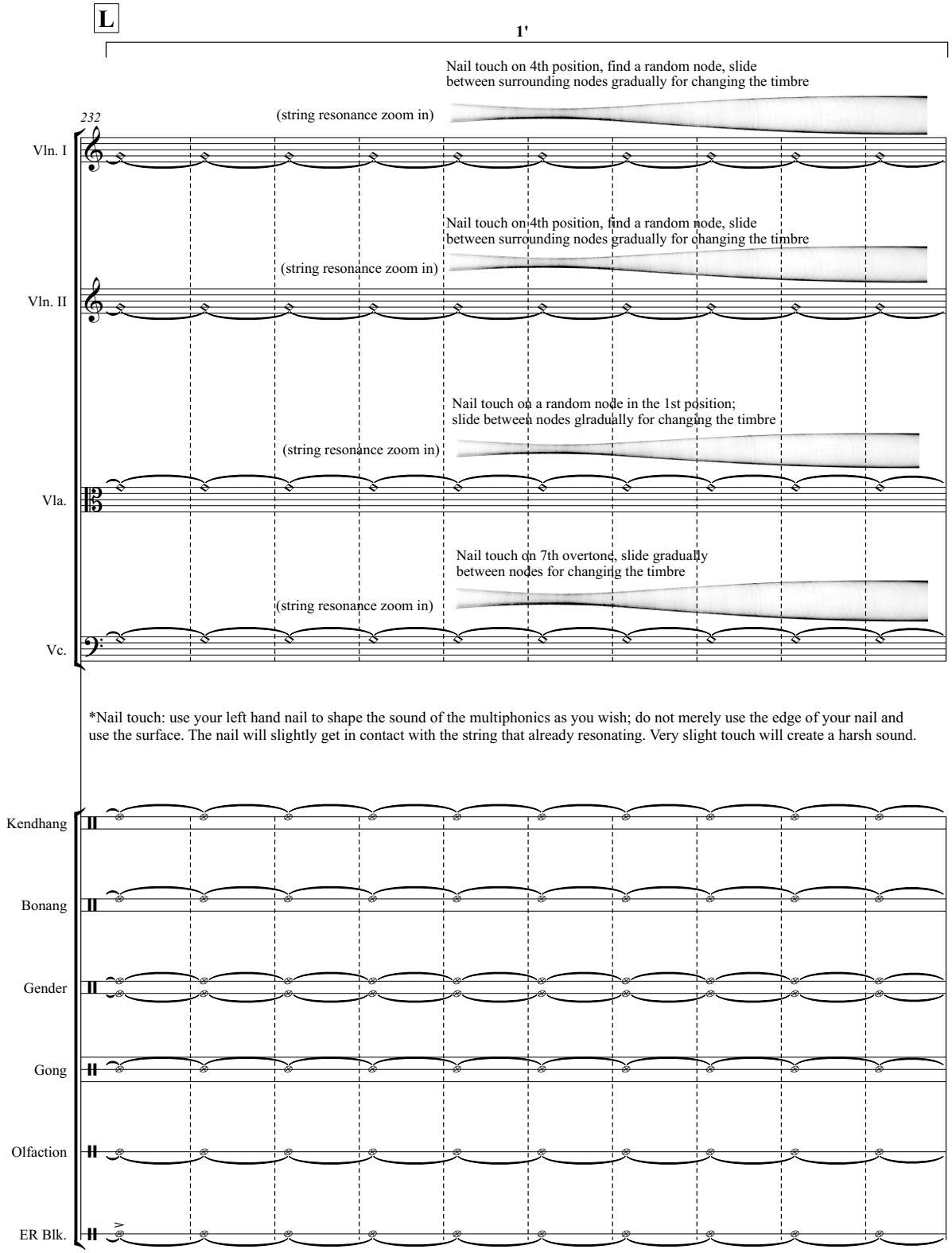

164
Vln. I
Vln. II
Vla.
Vc.
Kendhang
Gong

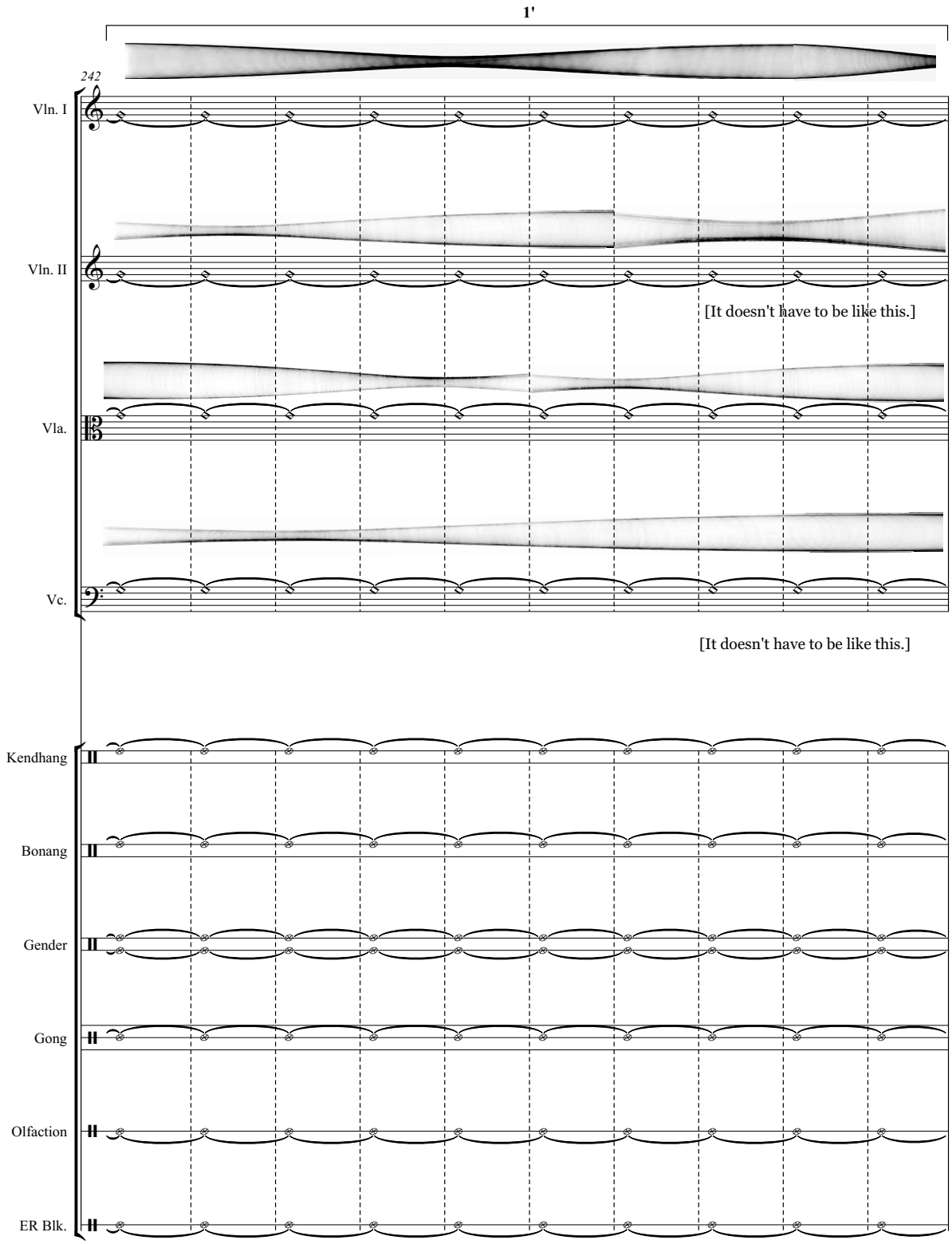

172
Vln. I
Vln. II
Vla.
Vc.
Kendhang
Gong
180
Vln. I
Vln. II
Vla.
Vc.
Kendhang
Gong

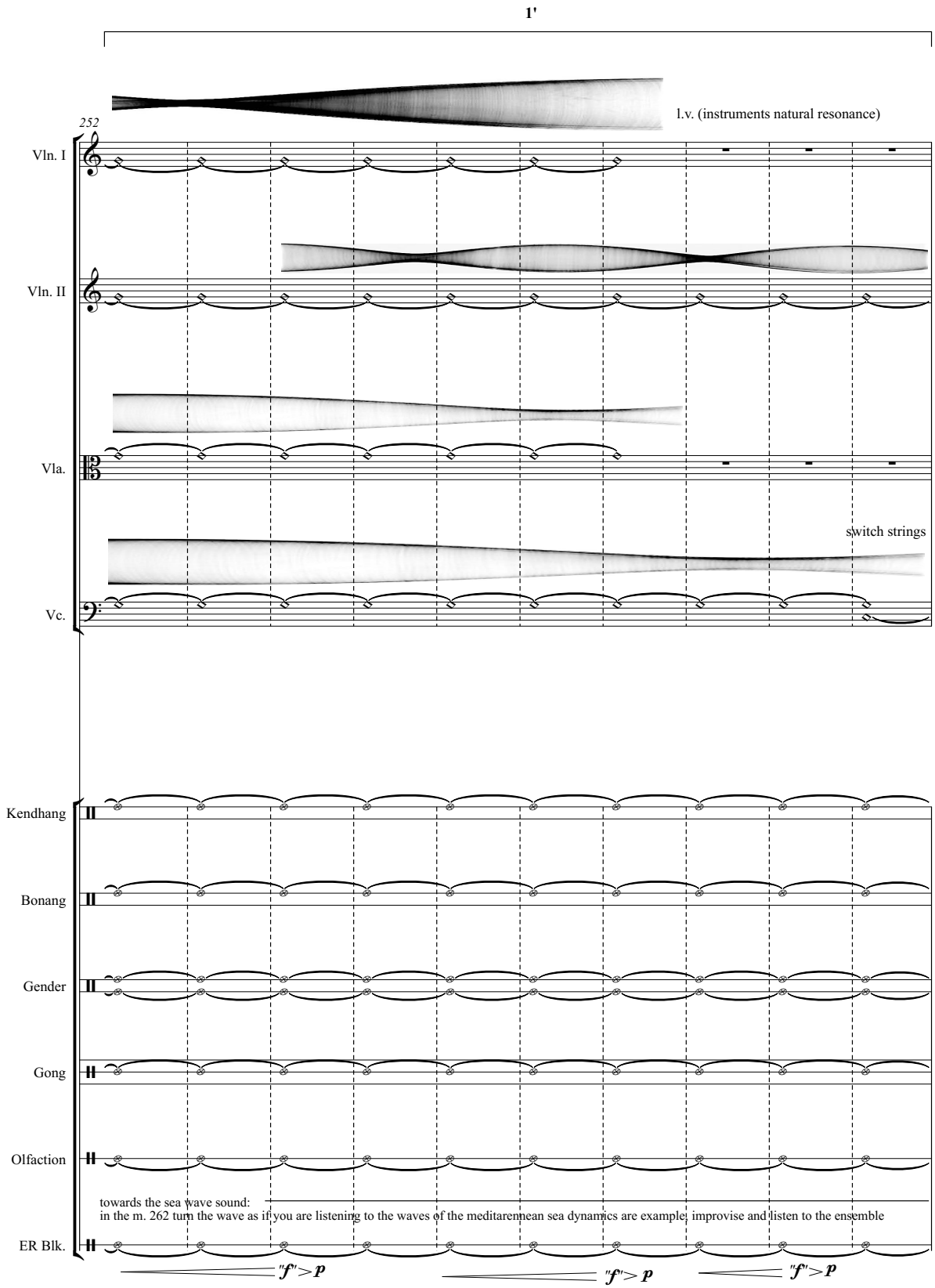

J
189
Vln. I
fffff max sempre
Vln. II
fffff max sempre
Vla.
fffff max sempre
emphasize beating
Vc.
fffff max sempre
Kendhang
All gongs buzzer; touch the hammer-head to the edge of the gong
Gong
Olfaction
sempre crackling and shaking the fabrics / napkins
"mf" sound & "f" smell
ER Blk.
sempre crackling
"mf"
197
emphasize beating
Vln. I
emphasize beating
Vln. II
emphasize beating
Vla.
Vc.
Kendhang
Gong
Olfaction
ER Blk.

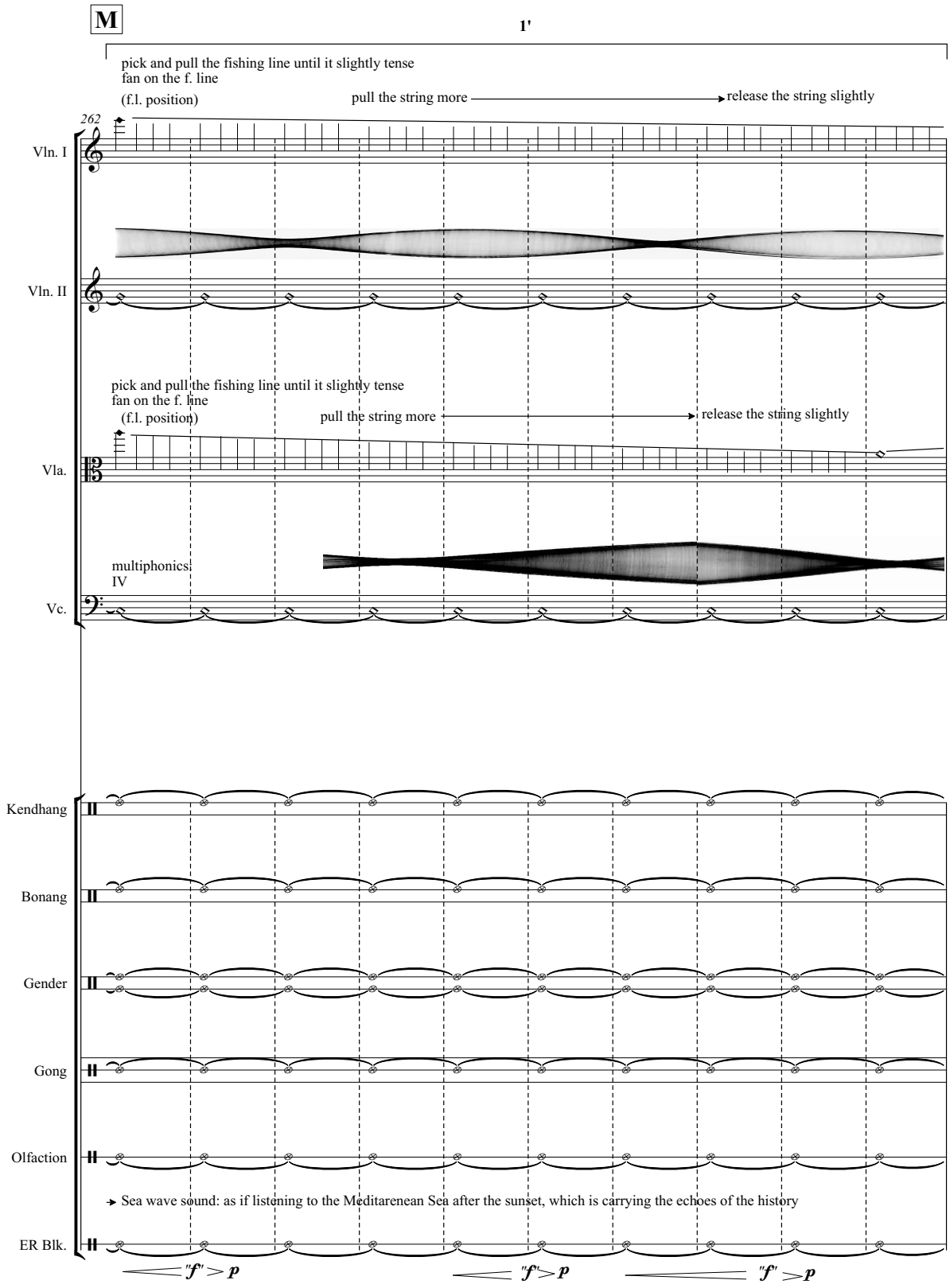

205
Vln. I
Vln. II
Vla.
Vc.
Kendhang
Gong
Olfaction
ER Blk.
212
touch: highest possible
f
touch: highest possible
morendo
p
pp
touch: highest possible
fan on the
mid string
mf
natural
dynamics of fan
touch: highest possible
fan on the
mid string
mf natural dynamics of fan
diffuse the smell till the end
pppp
almost no sound, only air circulation
p

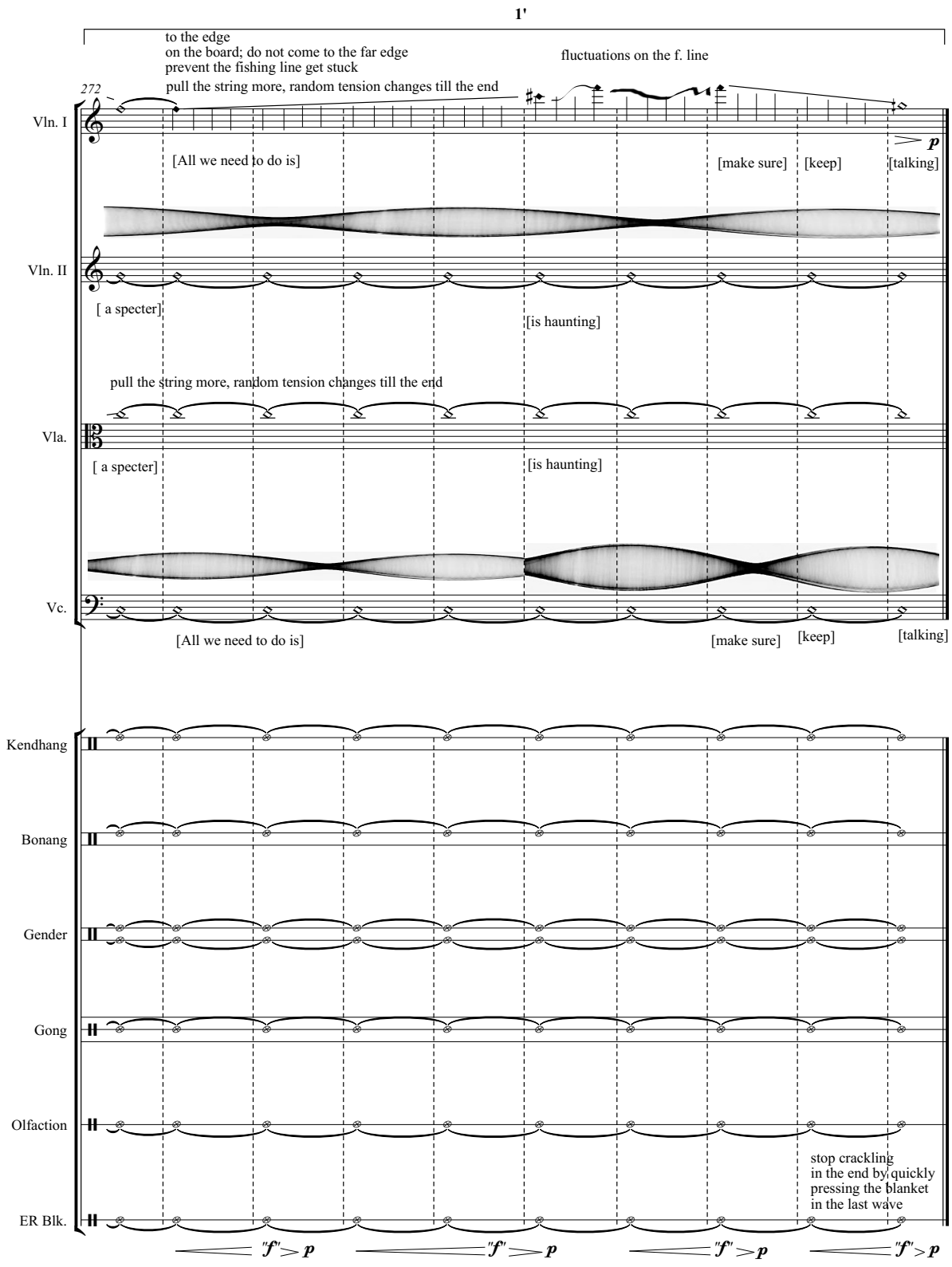

K
1'
222
prepare the fishing line on the I string
with a single knot, line is going to slide
fan on the
mid string
IV
try to arrive at multiphonics and sustain it as much as possible;
focus on the small fluctuations on the sound and other instruments
Vln. I
f
fan on the
mid string
IV
try to arrive at multiphonics and sustain it as much as possible;
focus on the small fluctuations on the sound and other instruments
Vln. II
f
prepare the fishing line on the I string
with a single knot, line is going to slide
fan on the
mid string
III
try to arrive at multiphonics and sustain it as much as possible;
focus on the small fluctuations on the sound and other instruments
Vla.
f
fan on the
mid string
III
try to arrive at multiphonics and sustain it as much as possible;
focus on the small fluctuations on the sound and other instruments
Vc.
f
stop
sempre scratch the surface with your palm and nails with circular motions
Kendhang
pp sempre background, balance with the strings, follow their dynamics
sempre circular molecular motion
Bonang
pp sempre middle-ground, balance with the strings, follow their dynamics
sempre circular motion
Gender
pp sempre background, match with bonang
balance with the strings, follow their dynamics
only gong II till the end,
l.v.
one hand subtle scratch on the gong and the other with stick
Gong
pp sempre background, balance with the strings, follow their dynamics
Olfaction
ER Blk.
pp sempre in between background & midle-ground,
balance with the strings, follow their dynamics


L
1'
232
Vln. I
Vln. II
Vla.
Vc.
Nail touch on 4th position, find a random node, slide between surrounding nodes gradually for changing the timbre
(string resonance zoom in)
Nail touch on 4th position, find a random node, slide between surrounding nodes gradually for changing the timbre
(string resonance zoom in)
Nail touch on a random node in the 1st position; slide between nodes glradually for changing the timbre
(string resonance zoom in)
Nail touch on 7th overtone, slide gradually between nodes for changing the timbre
(string resonance zoom in)
*Nail touch: use your left hand nail to shape the sound of the multiphonics as you wish; do not merely use the edge of your nail and use the surface. The nail will slightly get in contact with the string that already resonating. Very slight touch will create a harsh sound.
Kendhang
Bonang
Gender
Gong
Olfaction
ER Blk.


1'
242
Vln. I
Vln. II
[It doesn't have to be like this.]
Vla.
Vc.
[It doesn't have to be like this.]
Kendhang
Bonang
Gender
Gong
Olfaction
ER Blk.


1'
l.v. (instruments natural resonance)
252
Vln. I
Vln. II
Vla.
switch strings
Vc.
Kendhang
Bonang
Gender
Gong
Olfaction
towards the sea wave sound:
in the m. 262 turn the wave as if you are listening to the waves of the meditarennean sea dynamics are example: improvise and listen to the ensemble
ER Blk.
"f" > p
"f" > p
"f" > p


M
1'
pick and pull the fishing line until it slightly tense
fan on the f. line
(f.l. position)
pull the string more
release the string slightly
262
Vln. I
Vln. II
pick and pull the fishing line until it slightly tense
fan on the f. line
(f.l. position)
pull the string more
release the string slightly
Vla.
multiphonics:
IV
Vc.
Kendhang
Bonang
Gender
Gong
Olfaction
Sea wave sound: as if listening to the Meditarenean Sea after the sunset, which is carrying the echoes of the history
ER Blk.
"f" > p
"f" > p
"f" > p


1'
to the edge
on the board; do not come to the far edge
prevent the fishing line get stuck
pull the string more, random tension changes till the end
fluctuations on the f. line
272
Vln. I
[All we need to do is]
[make sure]
[keep]
[talking]
Vln. II
[a specter]
[is haunting]
pull the string more, random tension changes till the end
Vla.
[a specter]
[is haunting]
Vc.
[All we need to do is]
[make sure]
[keep]
[talking]
Kendhang
Bonang
Gender
Gong
Olfaction
stop crackling
in the end by quickly
pressing the blanket
in the last wave
ER Blk.

Ithaca NY

DECOLONIZING EMOTION IN CREATIVE PROCESSES:

NOSTALGIA

For single performer
on 30-note hand crank music box

Can Bilir

2019

Duration

6+ min

Instrument & tools

30-note hand crank music box bedplate,
music box sheets, stamp, and wooden structures for resonance

DECOLONIZING EMOTION IN CREATIVE PROCESSES: NOSTALGIA For single performer on 30-note hand crank music box

A paper and an original music composition presented in (Re)Making Memory in Southeast Asia at University of Michigan

Can Bilir
April 2019, Ann Arbor

In 2018, when I was in Turkey for the summer, I learnt that a severe thunderstorm was approaching directly to Ankara. To experience the thunderstorm, I prepared a shelter for myself in the high and open balcony of my grandmother's old top floor apartment. I installed a setup there for the sound recording as well. In the late night, I took my place in the balcony for the storm that was approaching from the east and had a memorable experience of the event, all while the recording was continuing with its preset advanced filtering and mixing tools.

After a couple of hours, in the following morning, when I returned back to my recording, something was different. It was a well-recorded signal, clean spatio-temporal representation of the thunderstorm, much better than probably the ones that I have encountered in various albums and the ones on YouTube, but the emotion that I was having in the night was missing. What I heard in the recording was just abstract sound, without a cause, without any expectation, without the live sensation and emotion of the original moment.

The actual subjective experience, the perception of hearing the endless complex sounds of the thunder's precipitation in the darkness and the flashes of multilayered patterns of uncountable lightning in the sky and their reflections on the earth, smelling and feeling the low frequency vibrations of sounds with fear were all missing in this recording. I will not deny the new meanings that came out of the abstraction of the sound in the recording, but my subjective experience of the original emotion was different in both.

The subjective experience of sound is impossible to record into a medium, or to predict. So, the emotion that the sound will stimulate is far more complicated to predict in advance. Maybe for an ordinary listener, it is not necessary to predict the emotion that the sound will stimulate; actually, the unpredictability of sound perception will fascinate the listener more, and the opposite will probably come to the listener banal and boring. But for a composer, prediction of the stimulation of the emotion is necessary; this time for me, it is about the deep remembrance and feeling of nostalgia.

Nostalgia first haunted me in October 2018, although I have been thinking about it since my early ages, possibly since after watching director Andrei Tarkovsky's film with the same name. The deep remembrances of the past sensory experiences; of sound without causes, however more vivid than actual ordinary day sensations; sound with smells of some sort of wood, something maybe about childhood, and beyond it about some incorporeal past memories or even a time that I never experienced; a sort of revival of subjective experience; a time that has no joints. In this state of nostalgia, my attention to sound was different than in my ordinary day life as a person who constantly listens, and my attention to the temporality, to feelings, and senses were not shared with anything that I normally do when I am listening. My Nostalgia state lasted a month or two, with abrupt interruptions by the responsibilities of ordinary day life and two significant composition projects.

Sometime later, I asked to myself: "if I compose something for a music box, can I create a soundscape that will stimulate the state I was in, for when I want go back to it sometime in the future again?"

For me the question would have had an easy answer if I was just a listener; "yes because, there is no doubt that the music box sounds already nostalgic." However, after adding the compositional concerns, my question has changed into: "would it be possible to compose an original music for the music box while not repeating the previous musical compositions and yet still stimulating the feeling of nostalgia?"

A manufacturer can build a preset of a section from Debussy's *Claire de Lune* in a hand crank music box. Stimulating a nostalgic moment of listening would be easier with this music box that is available in every corner of the European countries today, as a cheap souvenir. But as a composer, is it possible to compose something new with the limited pitch collection of these 30-notes centered in F major, without reproducing the musical structures and artifacts coming from Wolfgang Amadeus Mozart, Frédéric Chopin, Felix Mendelssohn, Robert Schumann, Claude Debussy and so on?

The physical capacity was an added layer of limitation. The mechanism of the 30-note hand crank bedplate was producing a sound that's intensity was almost completely below the threshold of the human auditory perception. I needed amplification to hear it without a digital converter and a piezo. At least for me the remembrances in a music box context should be analog, not digital. I prepared the music box by considering the acoustics, and the music box started to present itself as like a small piano. The new concept of the music box automatically brought me to face with the limitation of diatonic octaves and chromaticism, which are tightly bound to the history of consonance and dissonance hierarchies, the musical language limited by the harmony and melody that had started to become more

connected to the musical structures and schemas of the genius–male–composer–keyboardist public figure of the 18th and 19th-century of the so called West. In the end, the limitation with 30-notes and analog amplification showed that it is almost impossible to be truly emancipated from the past musical structures. I think the representation of the nostalgia that I was experiencing months ago has failed in this composition, but the new music I composed for this instrument dragged me into new identities of complexities in this short piece, which is not a simple reproduction of the past.

⁂

There are three movements in the work and none of them gives clear answers to any complex creative thought processes. The second movement has quotations. There is no quotation in the first and third movements. They carry mediant and sub-mediant harmonies.

The first movement *Lover, sister, mother* has three sections, inspired by the presentation of female protagonists and the musical parallelism in selected Ghibli productions, in addition to the female characters in the TV series *Shigatsu wa Kimi no Uso* (Your Lie in April) and female composer figures such as Fanny Mendelssohn and Clara Schumann.

The second movement is a *Lullaby*. It is based on two quotations from distant geographies that I aligned with counterpoint techniques. The first quotation is an Indonesian lullaby *Nina Bobo.* Singer Eva Gauthier presented *Nina Bobo* to the American audience in her concert series between 1915-1920, after she returned back from Java to the United States. In a program note for these concerts, Gauthier writes that "This melody is sung only for the white children by their native nurses, apparently the only one used throughout the island since the coming of the first white settlers." Matthew Isaac Cohen later corrects this information about the lullaby, stating that it was sung not only to the white colonizers exclusively and that it is associated with *kroncong* repertoire.[1] *Nina Bobo* thus has a more complicated history and presence.

The second quotation in this movement is *Ah! vous dirai-je, maman*, the theme of Mozart K265 variations, known today as *Twinkle twinkle little star*. The two quotations together complicate the idea of the original experience and the synthesis.

The third movement is Düş, which means both *dream* and *fall* in Turkish. It is inspired by the unpredictability of the *rubato* finger techniques in 19th-century pianistic virtuosity, in contrast to the mechanic structure of the hand crank music box.

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1 Matthew Isaac Cohen, *Performing Otherness: Java and Bali on International Stages, 1905-1952* (London: Palgrave Macmillan, 2010), 47.

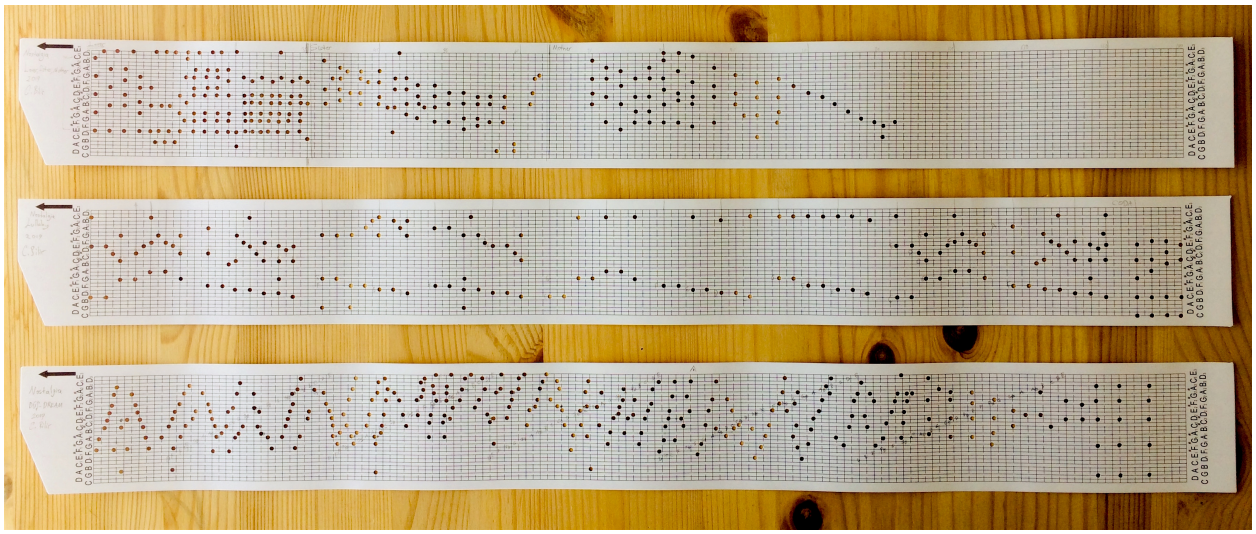


Figure 1. Nostalgia music scores/sheets

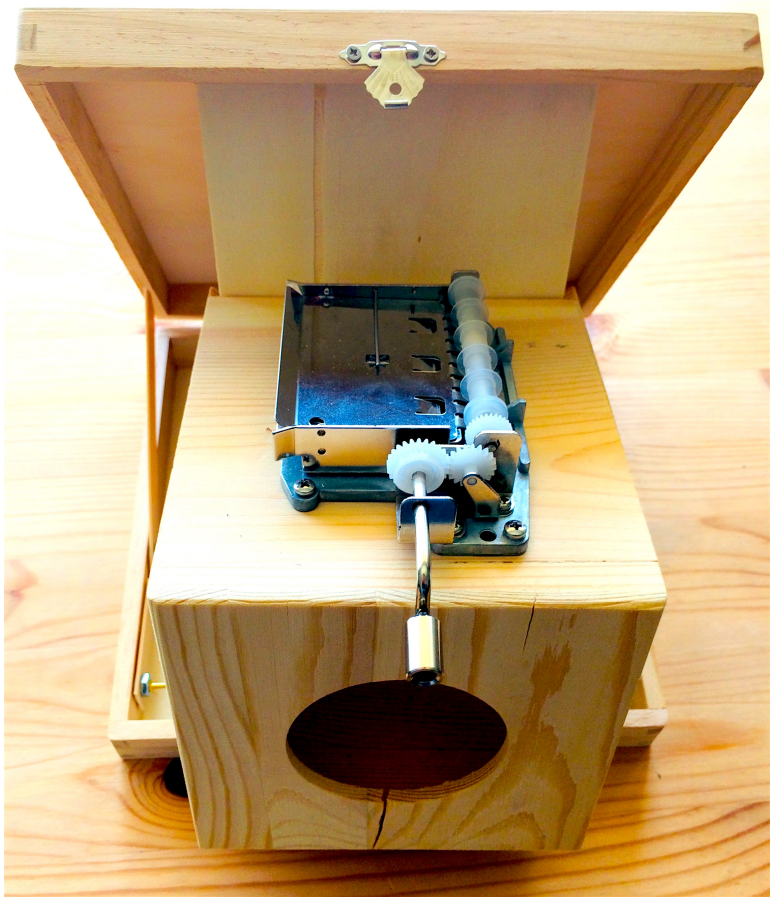


Figure 2. 30-Note Hand Crank Music Box

String Quartet II

'A wordless tale
dedicated to the
flying Willendorfs
in the windowless skies'

Can Bilir

2016

Neurotic Tickling the Subject-xx, Iris Ergul, 2013

Duration

Approximately 9 min

Instrumentation

Violin I
Violin II
Viola
Violoncello

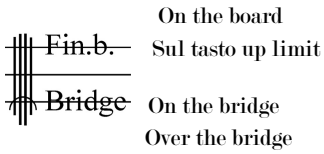
Signs and Explanations

The second staves indicate the bow positions for ponticello and tasto. If it is not indicated, the bow will be in normal speed and in the ordinary bow position.

Sempre senza vibrato unless it is indicated.

Violin I is -50 cents lower
Viola is -25 cents lower

tonlos: on both the wood and string, slightly pitch comes out



The contextual dynamics: *"ppp"* - *"fff"*

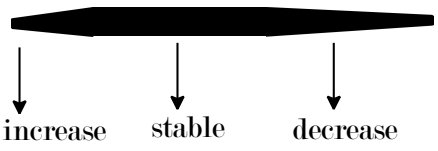
(varies from techniques that used)

col legnos: cl. btt. and cl. tt.

Hit the wood ×

Free gliss.

Scratch tone



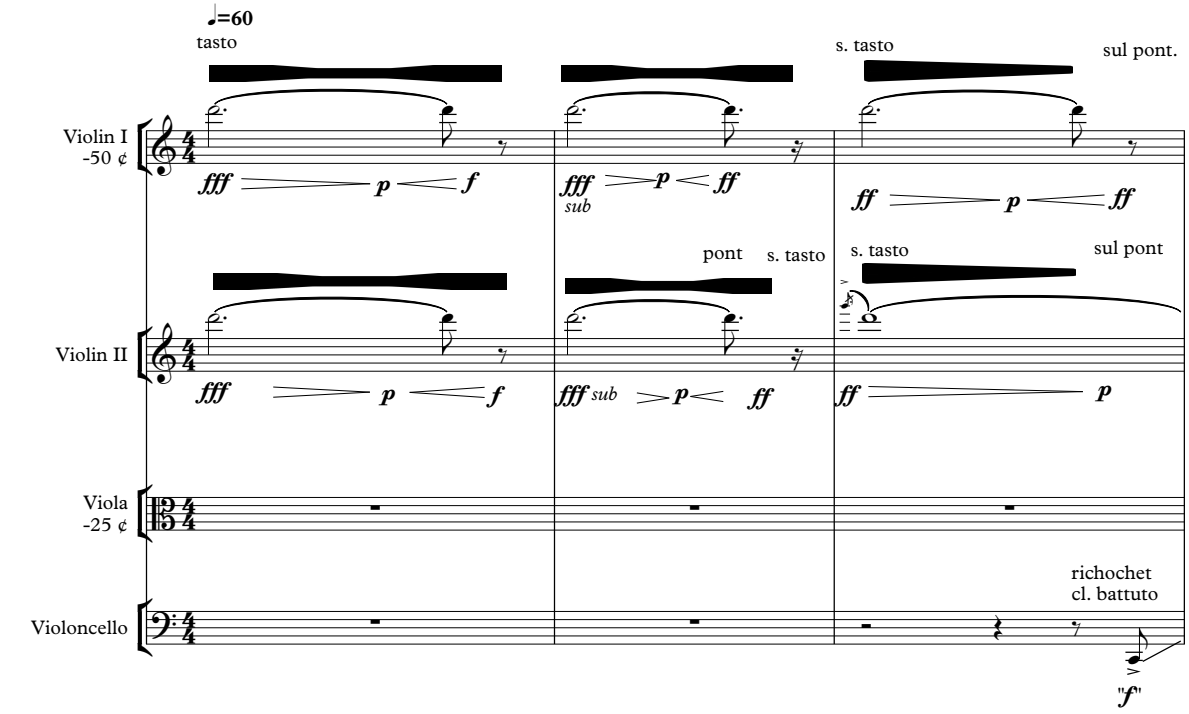
Scratch tone

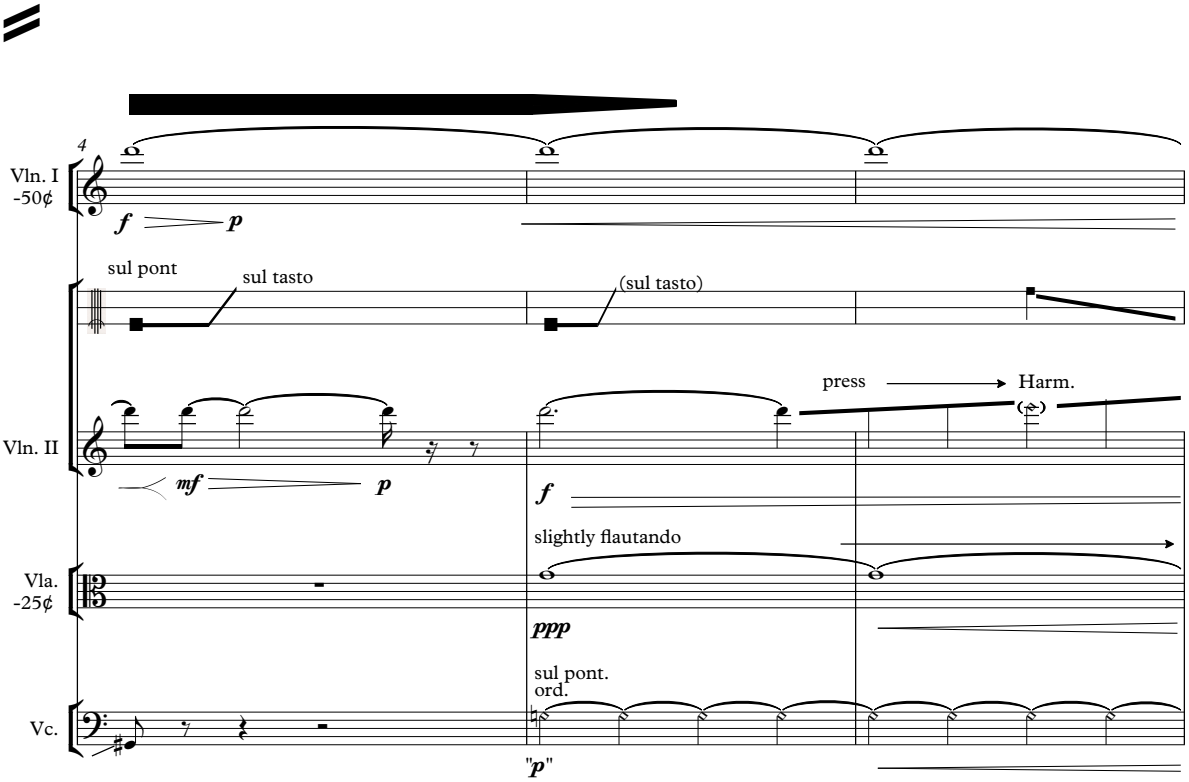
sudden and more pressure than the one in the left

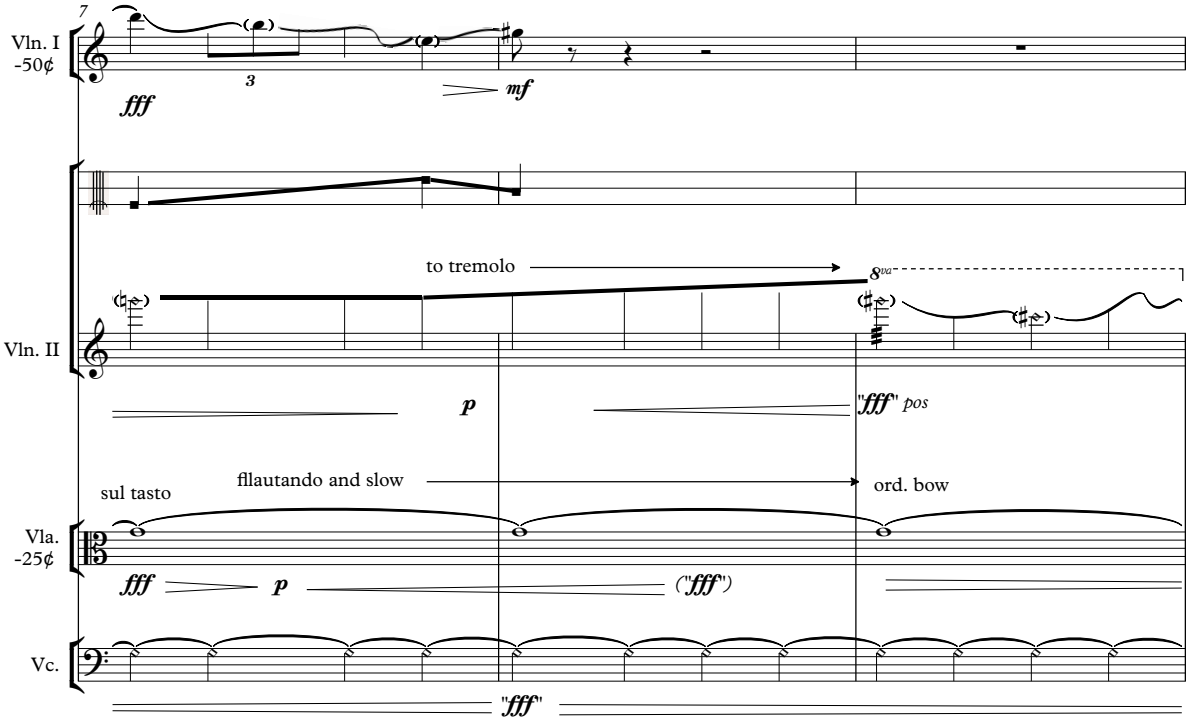
String Quartet II

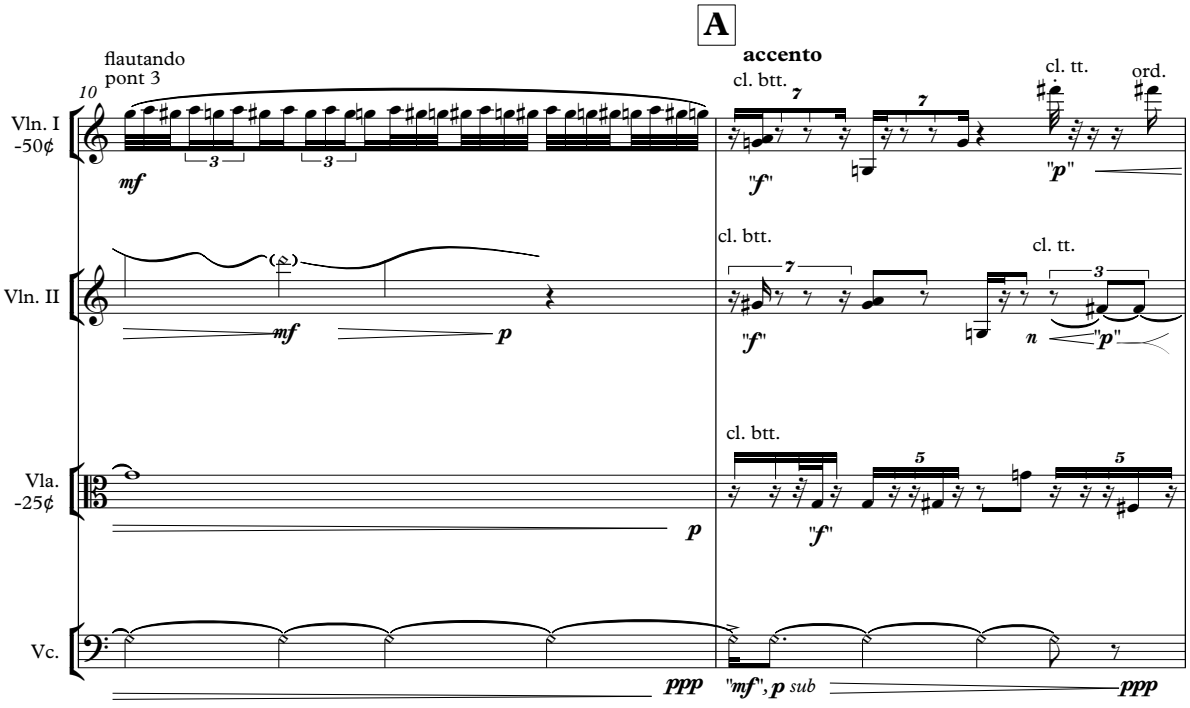
'A wordless tale dedicated to the flying Willendorfs
in the windowless skies'
for JACK Quartet

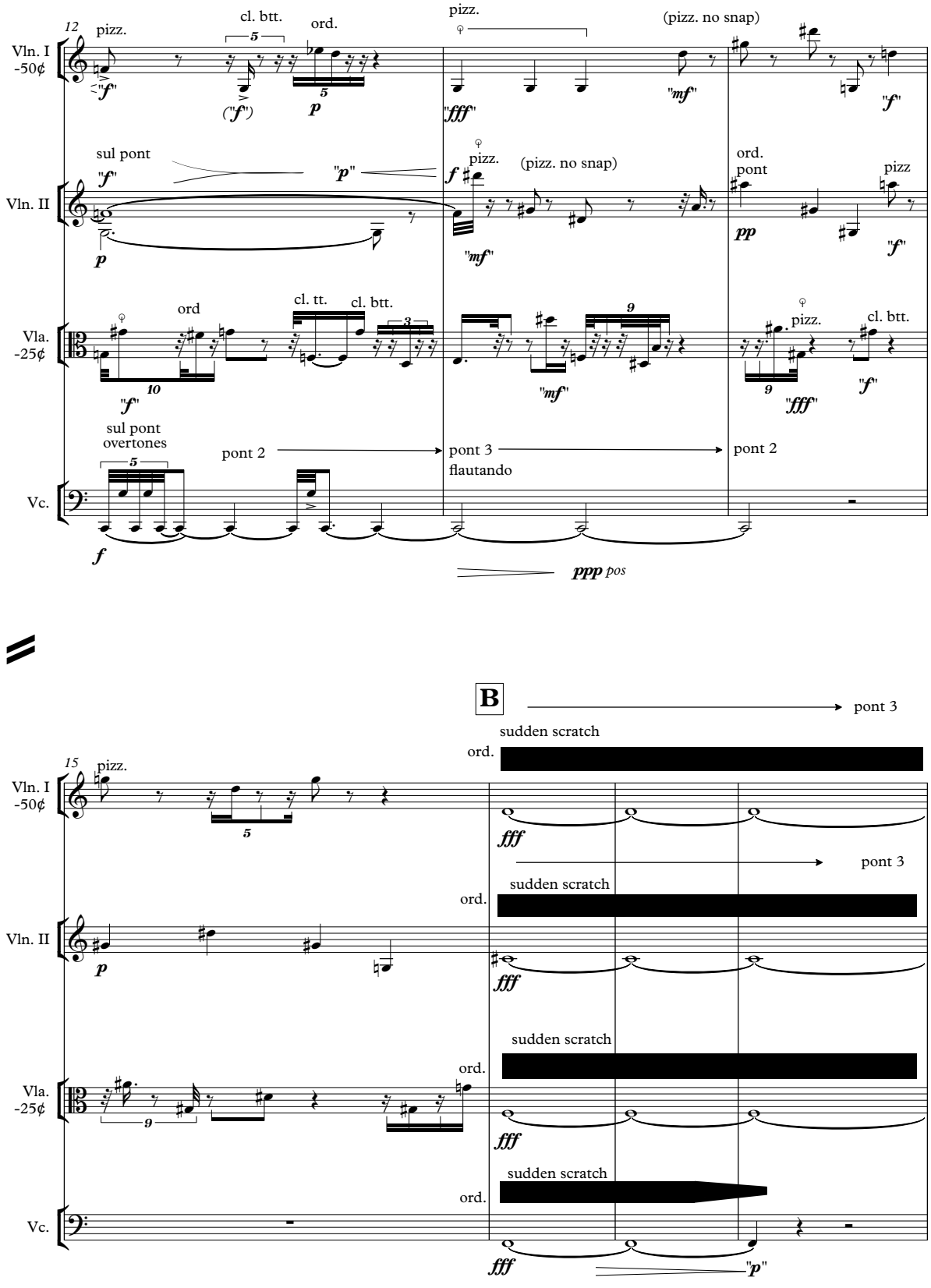
Can Bilir
2015-16

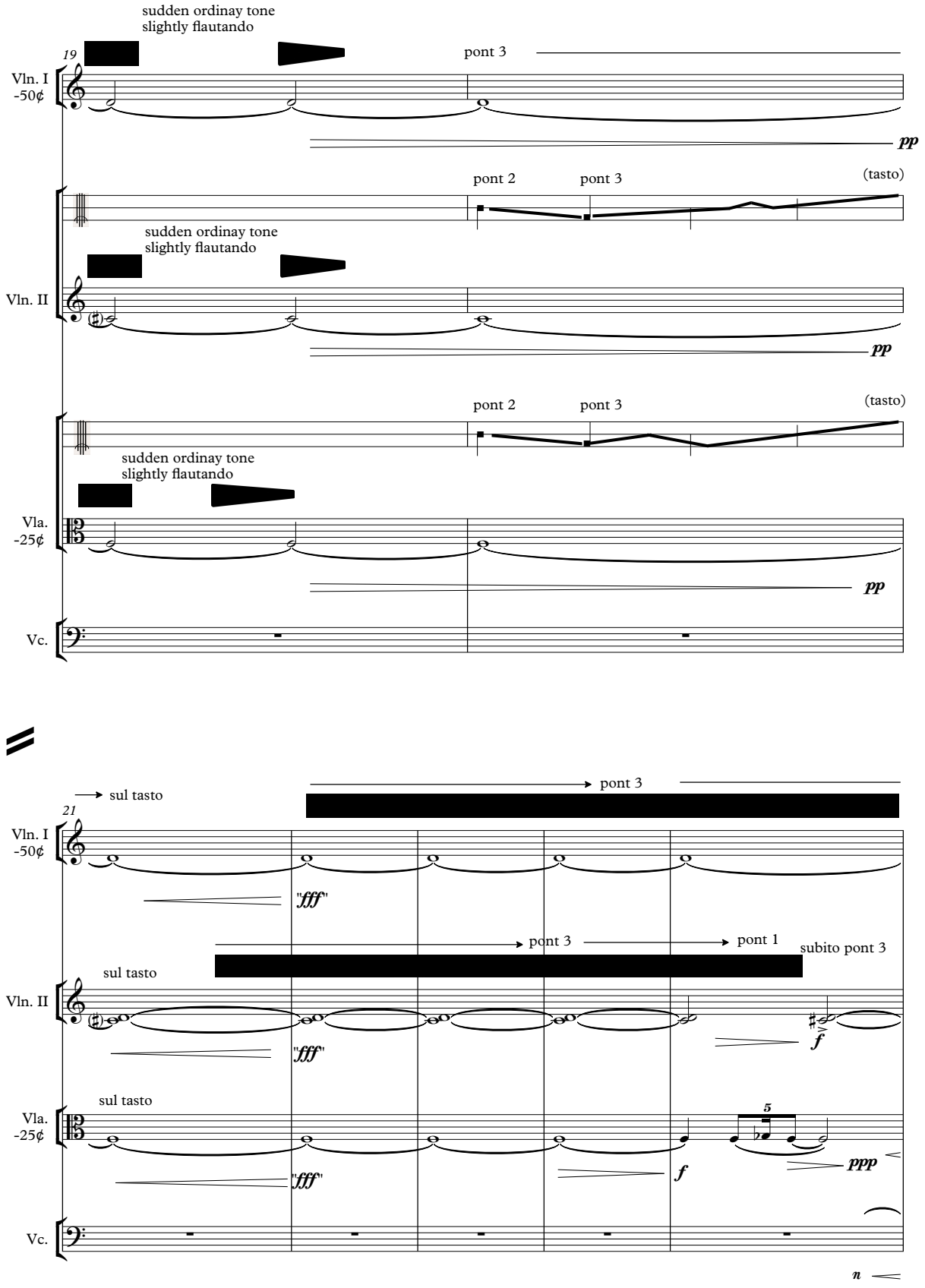


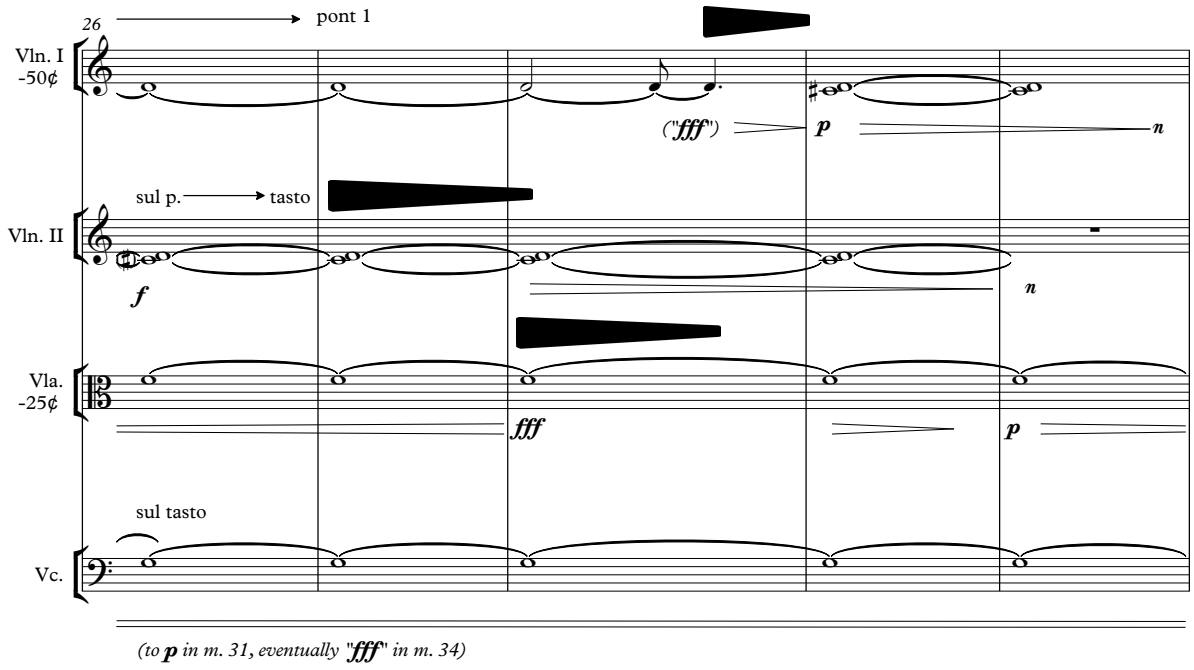



7
Vln. I
-50¢
fff
3
mf
to tremolo
8va
Vln. II
p
"fff" pos
sul tasto
fllautando and slow
ord. bow
Vla.
-25¢
fff
p
("fff")
Vc.
"fff"

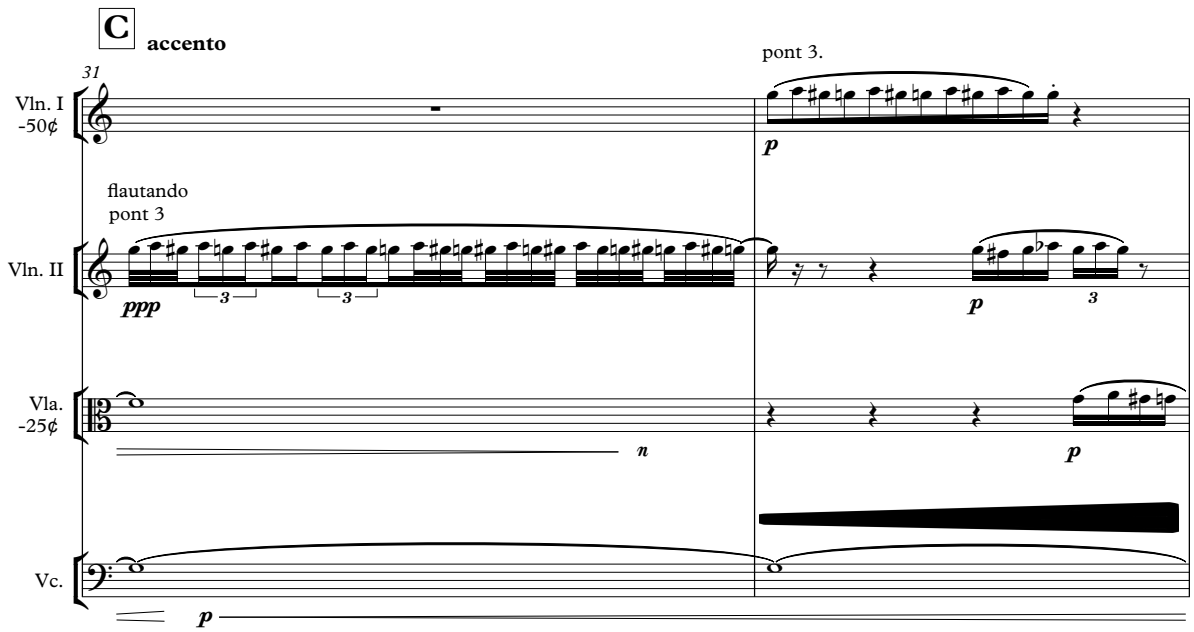

A
accento
flautando
pont 3
10
Vln. I
-50¢
mf
3
3
cl. btt.
7
7
"f"
cl. tt.
ord.
"p"
Vln. II
mf
p
cl. btt.
7
"f"
cl. tt.
3
n
"p"
Vla.
-25¢
p
cl. btt.
5
5
"f"
Vc.
ppp
"mf", p sub
ppp

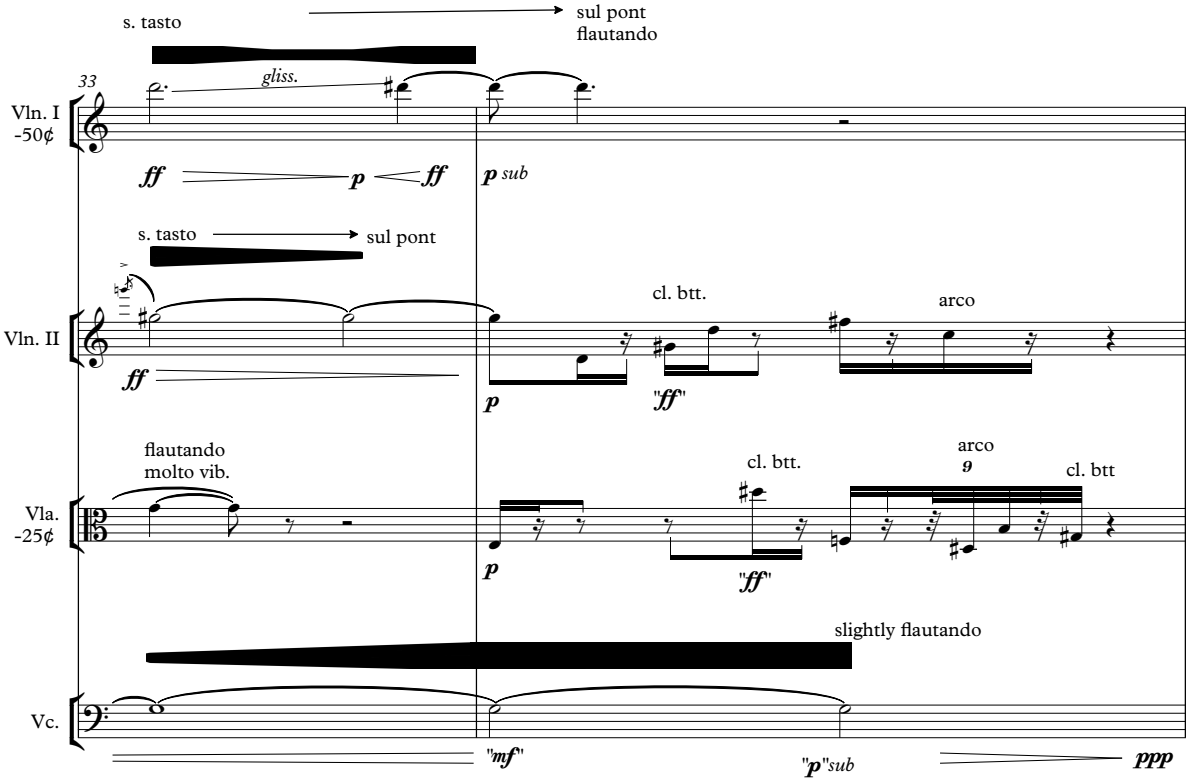

12
pizz.
cl. btt.
ord.
pizz.
(pizz. no snap)
Vln. I
-50¢
sul pont
pizz.
(pizz. no snap)
ord.
pont
pizz
Vln. II
ord
cl. tt.
cl. btt.
pizz.
cl. btt.
Vla.
-25¢
sul pont
overtones
pont 2
pont 3
flautando
pont 2
Vc.
ppp pos
B
pont 3
sudden scratch
ord.
15
pizz.
Vln. I
-50¢
pont 3
sudden scratch
ord.
Vln. II
sudden scratch
ord.
Vla.
-25¢
sudden scratch
ord.
Vc.

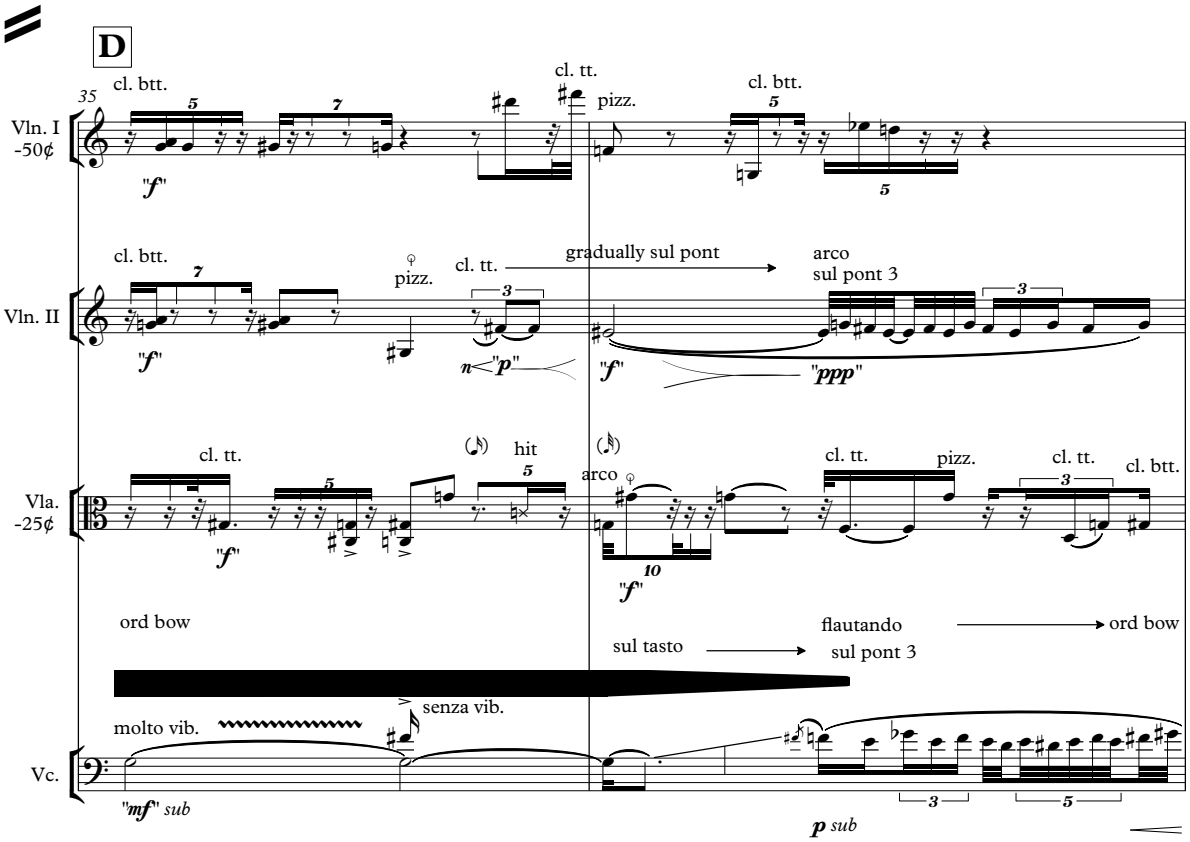

sudden ordinay tone
slightly flautando
19
pont 3
Vln. I
-50¢
pp
pont 2
pont 3
(tasto)
sudden ordinay tone
slightly flautando
Vln. II
pp
pont 2
pont 3
(tasto)
sudden ordinay tone
slightly flautando
Vla.
-25¢
pp
Vc.
sul tasto
pont 3
21
Vln. I
-50¢
"fff"
pont 3
pont 1
subito pont 3
sul tasto
Vln. II
"fff"
f
sul tasto
Vla.
-25¢
5
"fff"
f
ppp
Vc.
n

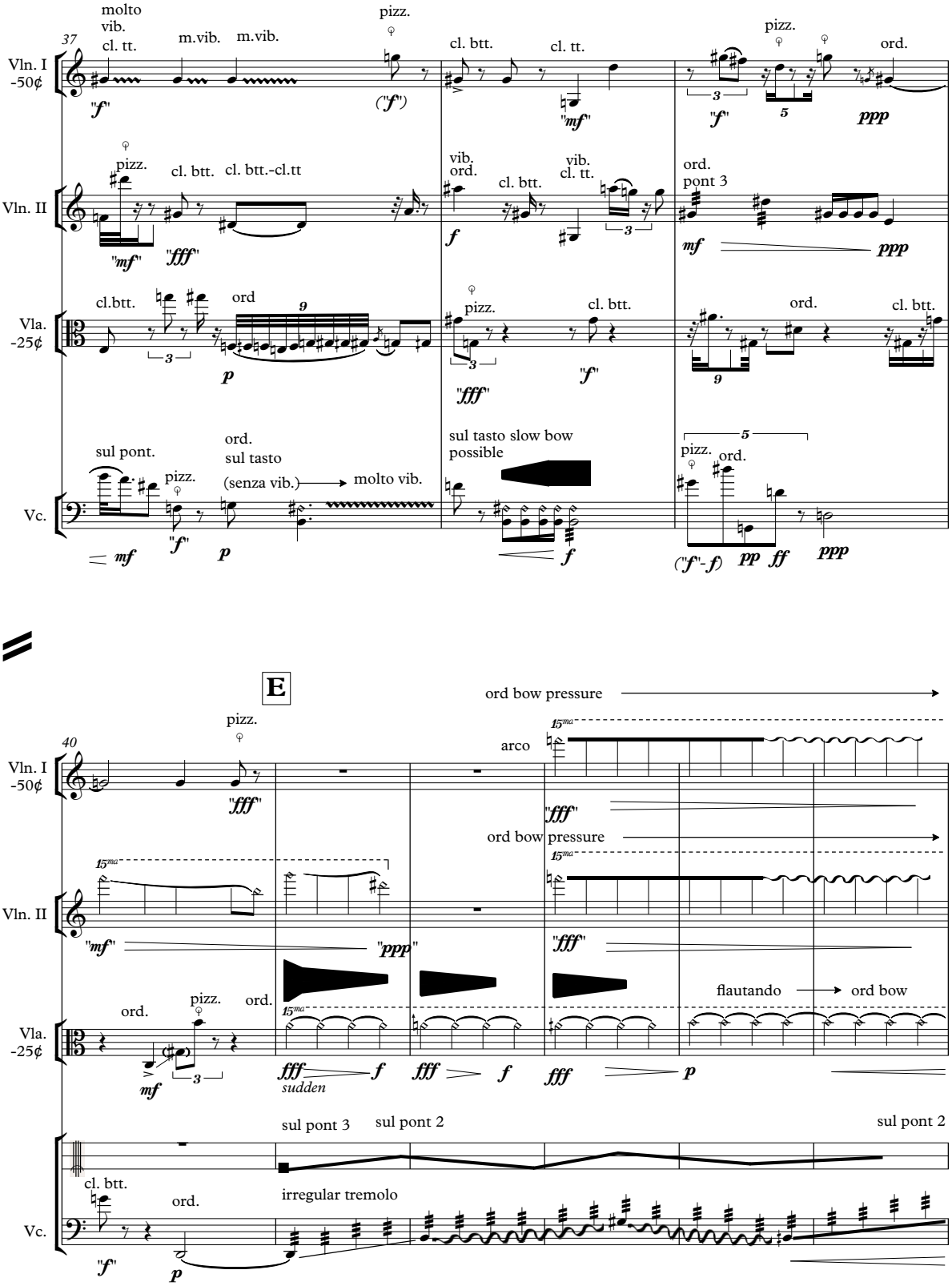


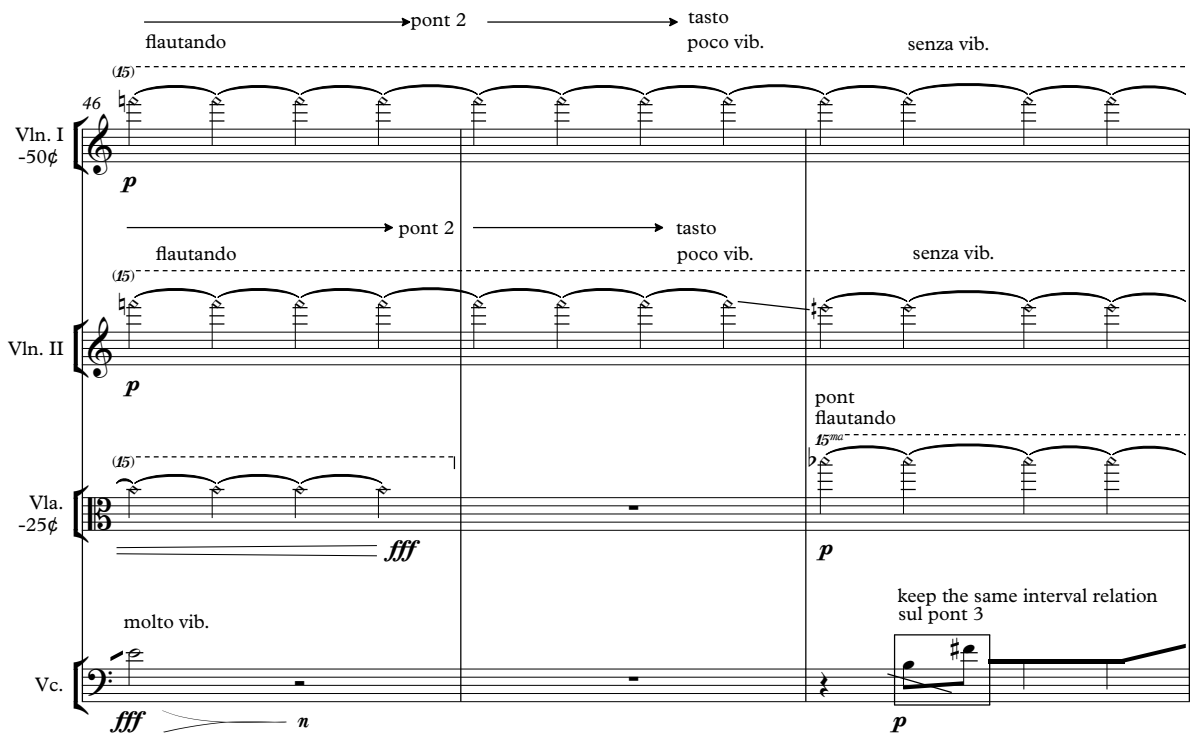
*(to **p** in m. 31, eventually "**fff**" in m. 34)*

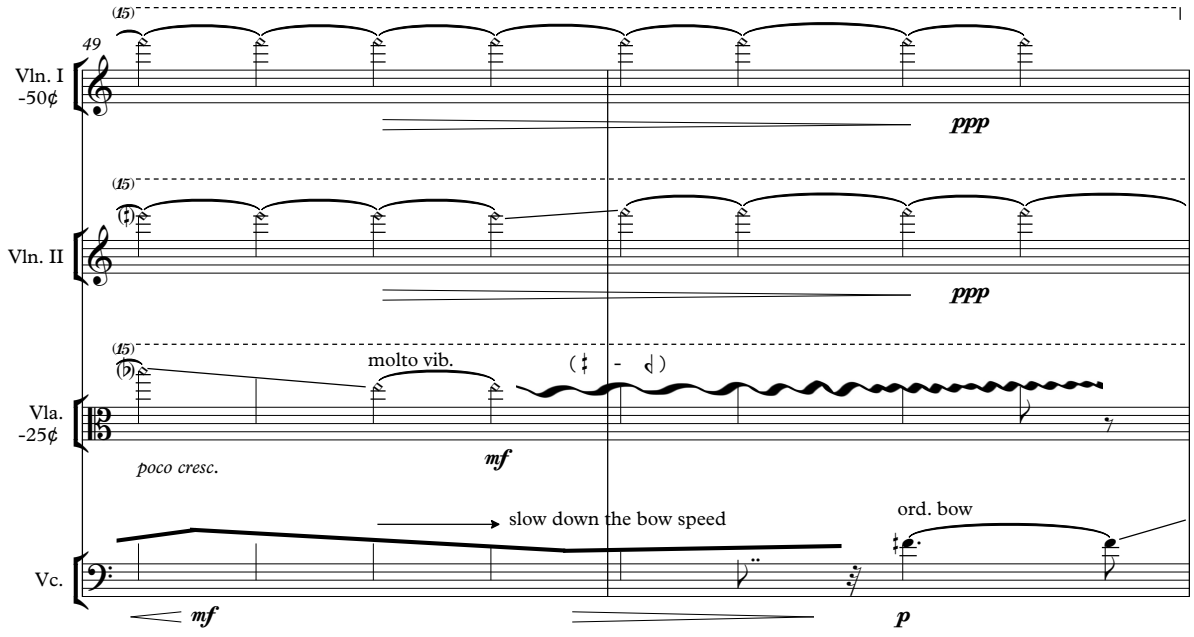


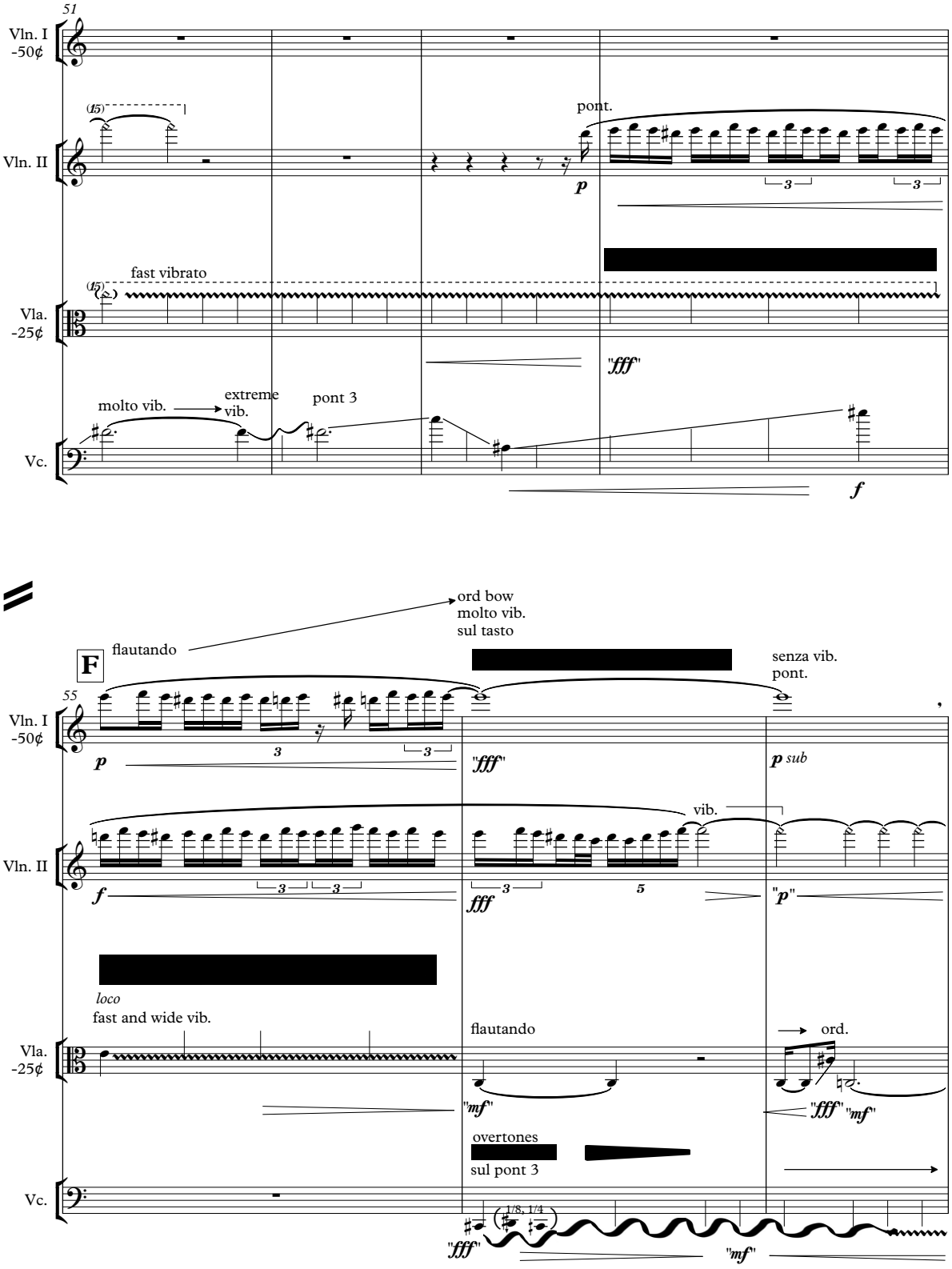

s. tasto
sul pont
flautando
33
gliss.
Vln. I
-50¢
ff
p
ff
p sub
s. tasto
sul pont
Vln. II
cl. btt.
arco
ff
p
"ff"
flautando
molto vib.
Vla.
-25¢
cl. btt.
arco
9
cl. btt
p
"ff"
slightly flautando
Vc.
"mf"
"p"sub
ppp

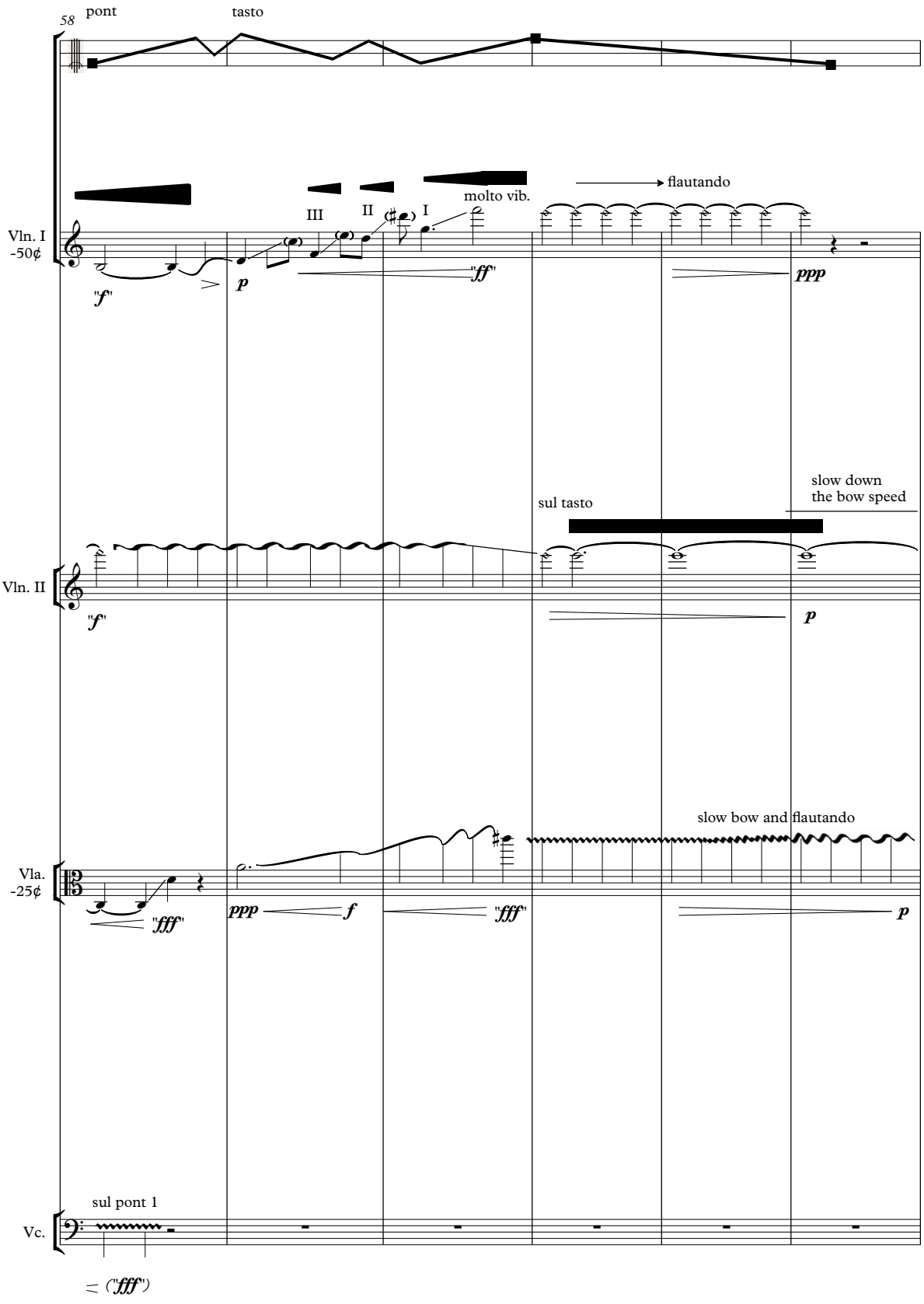

D
35
cl. btt.
cl. tt.
pizz.
cl. btt.
Vln. I
-50¢
"f"
cl. btt.
pizz.
cl. tt.
gradually sul pont
arco
sul pont 3
Vln. II
"f"
"p"
"f"
"ppp"
cl. tt.
hit
arco
cl. tt.
pizz.
cl. tt.
cl. btt.
Vla.
-25¢
"f"
"f"
ord bow
sul tasto
flautando
sul pont 3
ord bow
molto vib.
senza vib.
Vc.
"mf" sub
p sub


37
molto vib.
cl. tt.
m.vib.
m.vib.
pizz.
cl. btt.
cl. tt.
pizz.
ord.
Vln. I
-50¢
"f"
("f")
"mf"
"f"
5
ppp
pizz.
cl. btt.
cl. btt.-cl.tt
vib.
ord.
cl. btt.
vib.
cl. tt.
ord.
pont 3
Vln. II
"mf"
"fff"
f
mf
ppp
cl.btt.
ord
9
pizz.
cl. btt.
ord.
cl. btt.
Vla.
-25¢
p
"fff"
"f"
9
sul pont.
ord.
sul tasto
sul tasto slow bow possible
pizz.
ord.
pizz.
(senza vib.)
molto vib.
Vc.
mf
"f"
p
f
("f"-f)
pp
ff
ppp
E
ord bow pressure
pizz.
40
arco
15ma
Vln. I
-50¢
"fff"
"fff"
ord bow pressure
15ma
15ma
Vln. II
"mf"
"ppp"
"fff"
ord.
pizz.
ord.
flautando
ord bow
15ma
Vla.
-25¢
mf
3
fff
sudden
f
fff
f
fff
p
sul pont 3
sul pont 2
sul pont 2
cl. btt.
ord.
irregular tremolo
Vc.
"f"
p

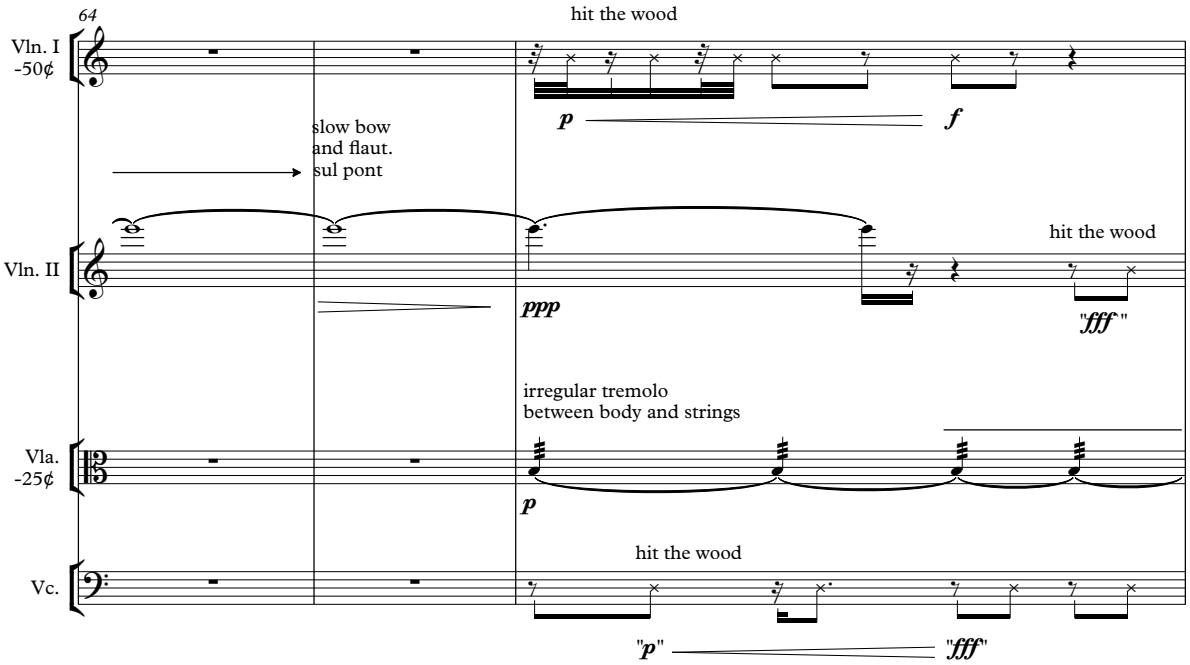

flautando
pont 2
tasto
poco vib.
senza vib.
46
Vln. I
-50¢
p
flautando
pont 2
tasto
poco vib.
senza vib.
Vln. II
p
pont
flautando
15ma
Vla.
-25¢
fff
p
molto vib.
keep the same interval relation
sul pont 3
Vc.
fff
n
p

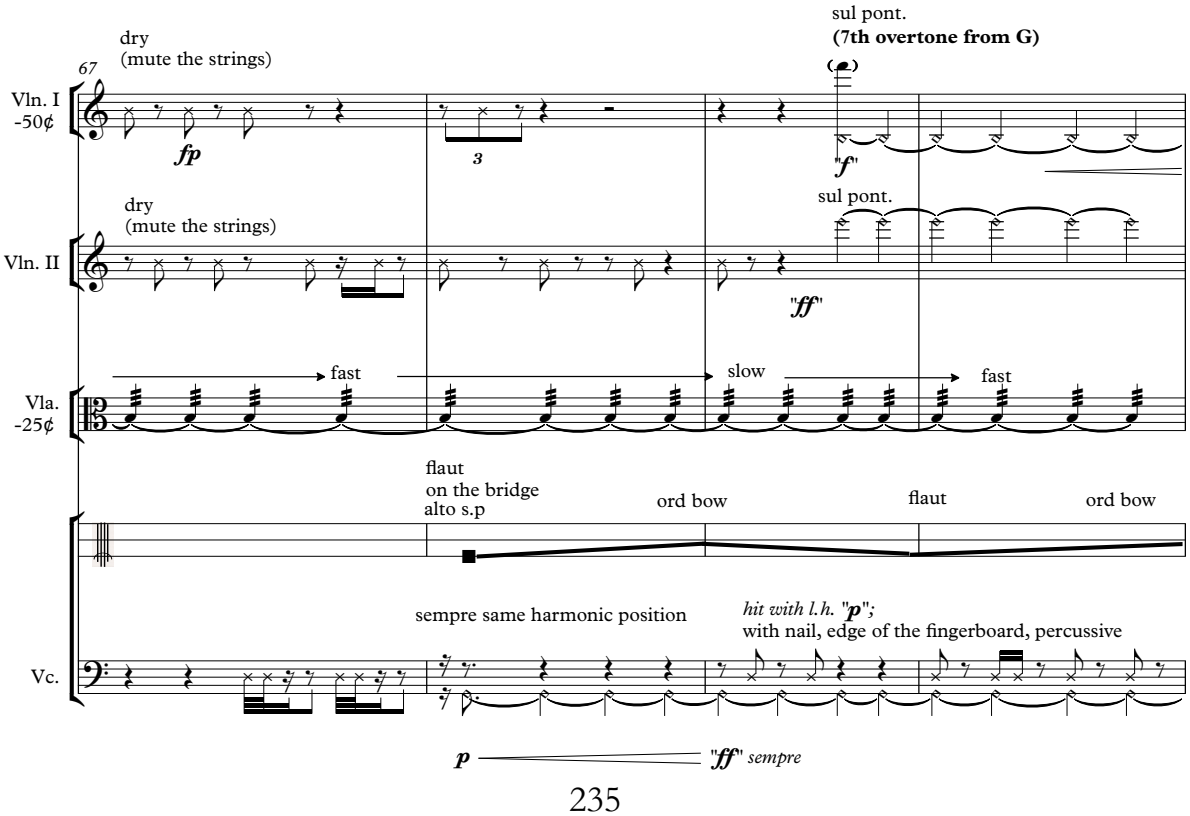

49
Vln. I
-50¢
ppp
Vln. II
ppp
molto vib.
Vla.
-25¢
poco cresc.
mf
slow down the bow speed
ord. bow
Vc.
mf
p

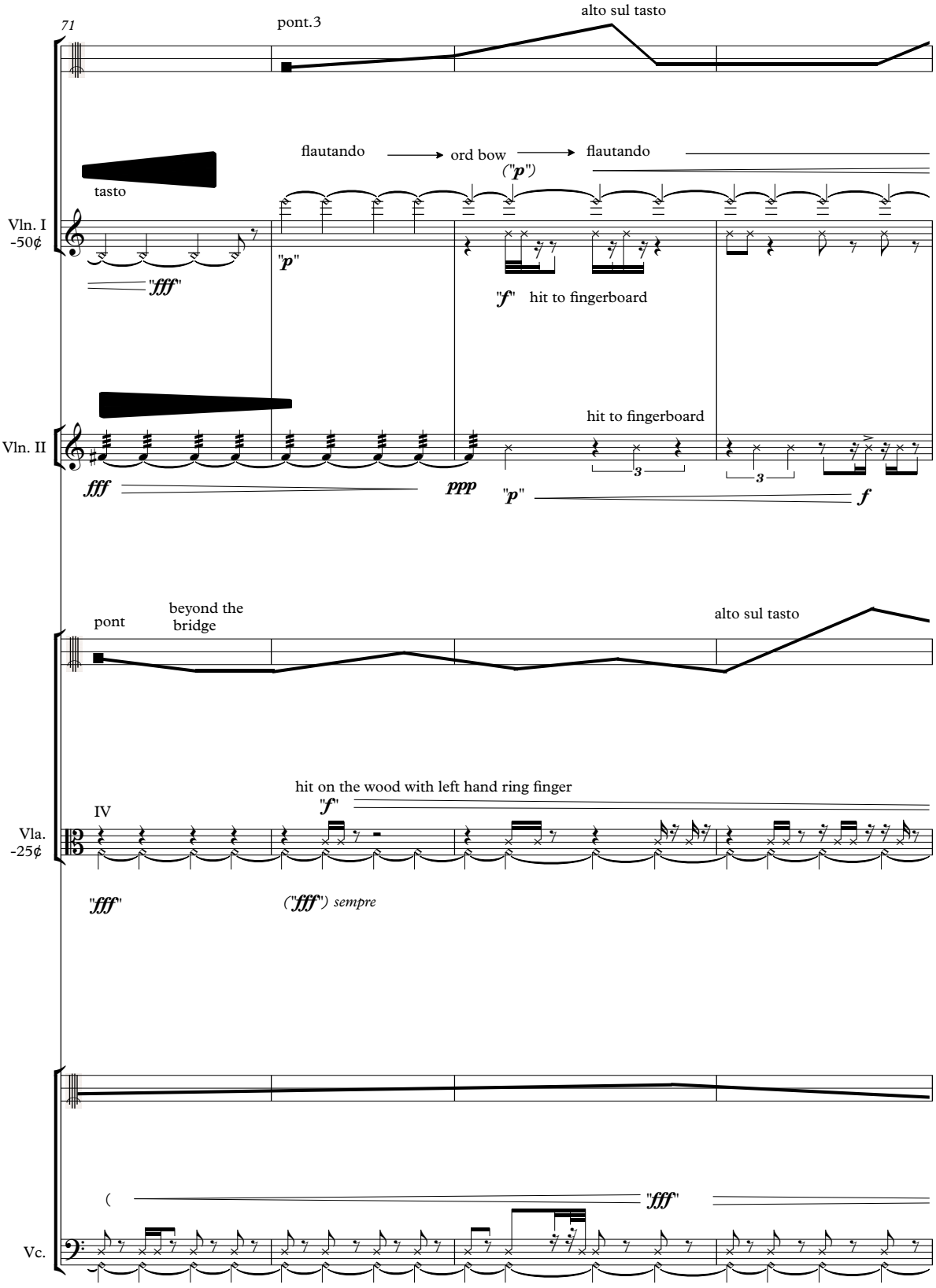

51
Vln. I
-50¢
Vln. II
(15)
pont.
p
3
3
fast vibrato
(15)
Vla.
-25¢
"fff"
molto vib.
extreme
vib.
pont 3
Vc.
f
ord bow
molto vib.
sul tasto
flautando
F
senza vib.
pont.
55
Vln. I
-50¢
p
3
3
"fff"
p sub
vib.
Vln. II
f
3
3
fff
3
5
"p"
loco
fast and wide vib.
flautando
ord.
Vla.
-25¢
"mf"
"fff"
"mf"
overtones
sul pont 3
Vc.
1/8, 1/4
"fff"
"mf"

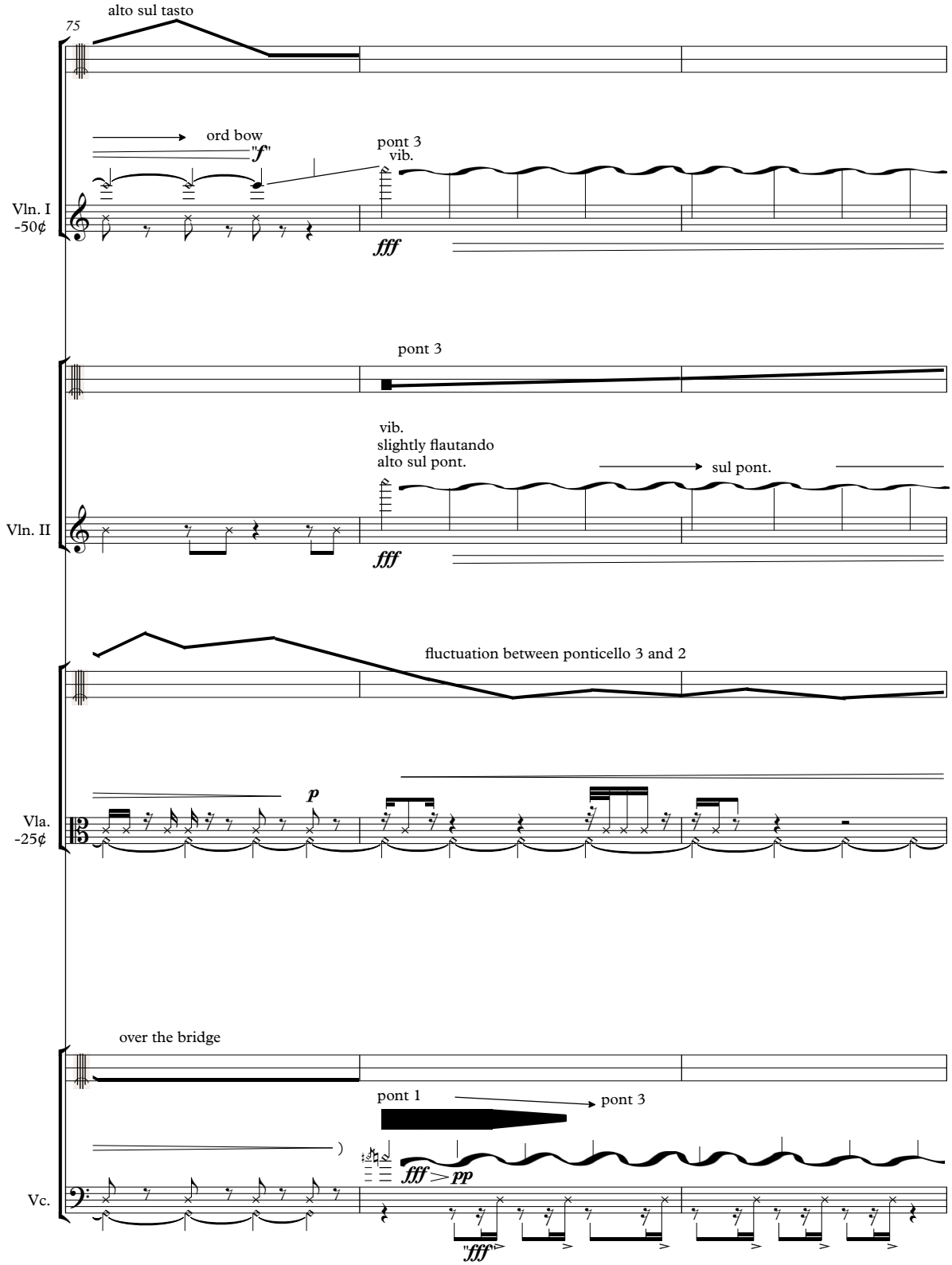

58
pont
tasto
Vln. I
-50¢
III
II
I
molto vib.
flautando
"f"
p
"ff"
ppp
slow down
the bow speed
sul tasto
Vln. II
"f"
p
slow bow and flautando
Vla.
-25¢
"fff"
ppp
f
"fff"
p
sul pont 1
Vc.
= ("fff")

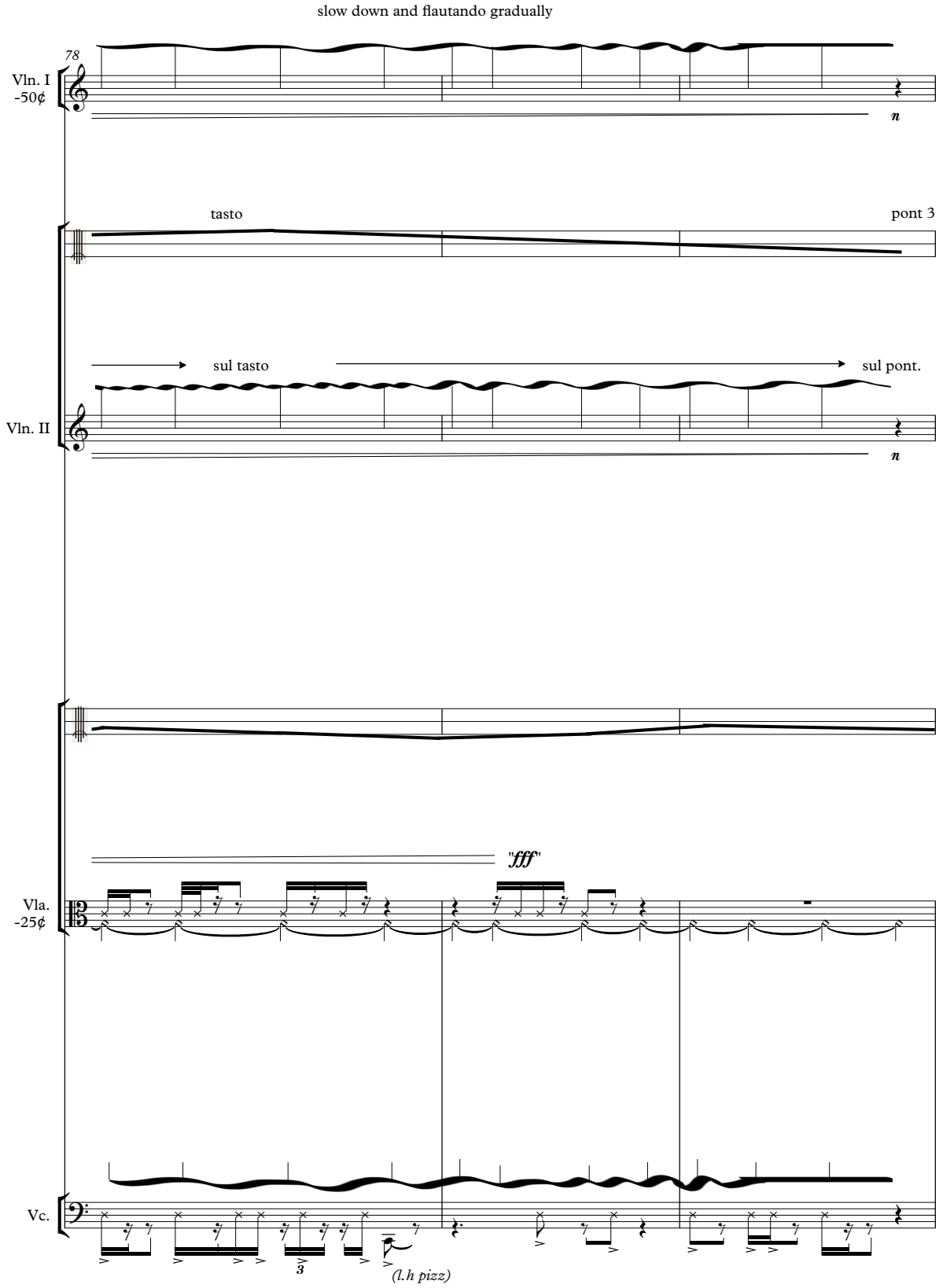
G

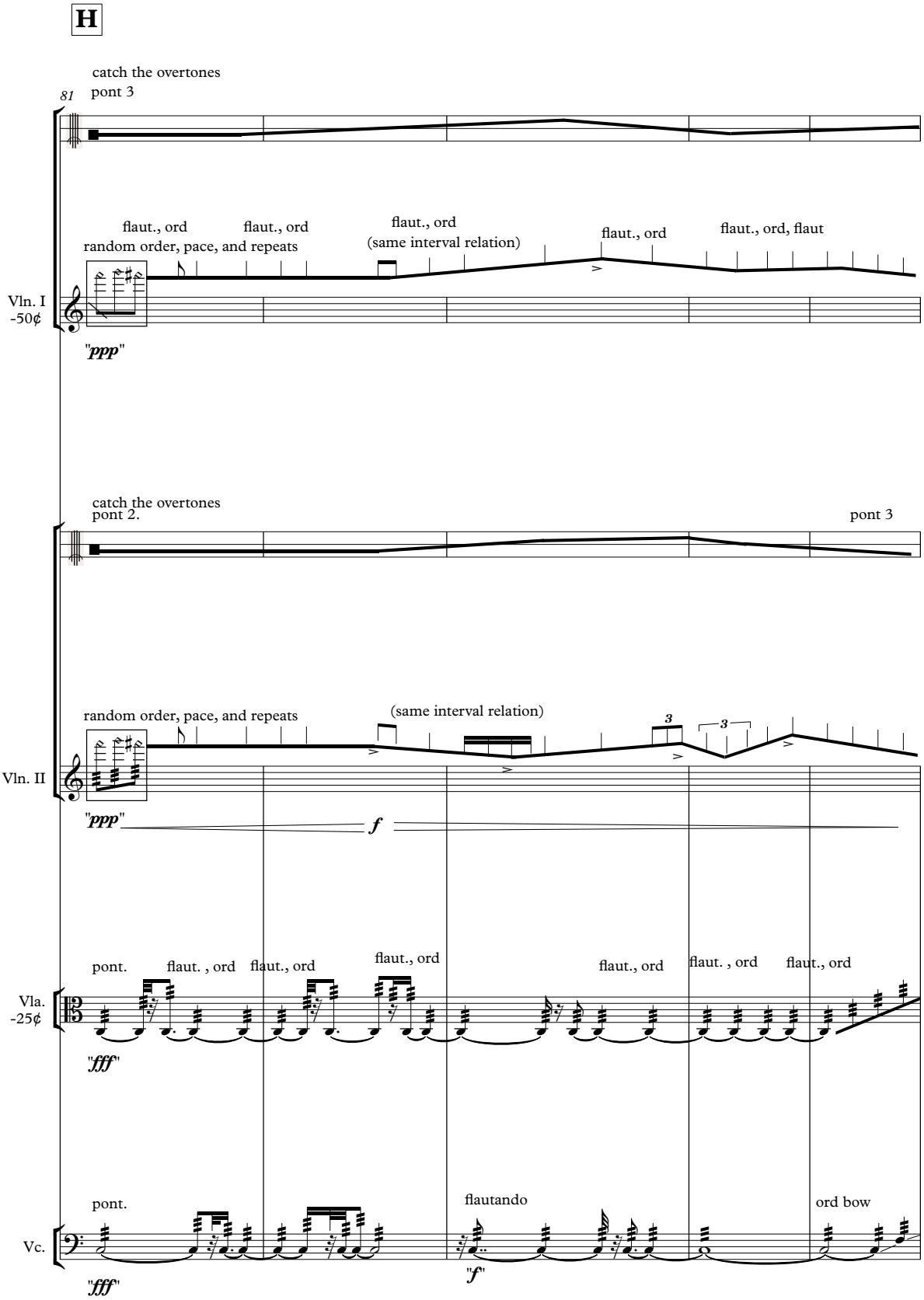

64
Vln. I
-50¢
hit the wood
p
f
slow bow
and flaut.
sul pont
Vln. II
hit the wood
ppp
"fff"
irregular tremolo
between body and strings
Vla.
-25¢
p
hit the wood
Vc.
"p"
"fff"

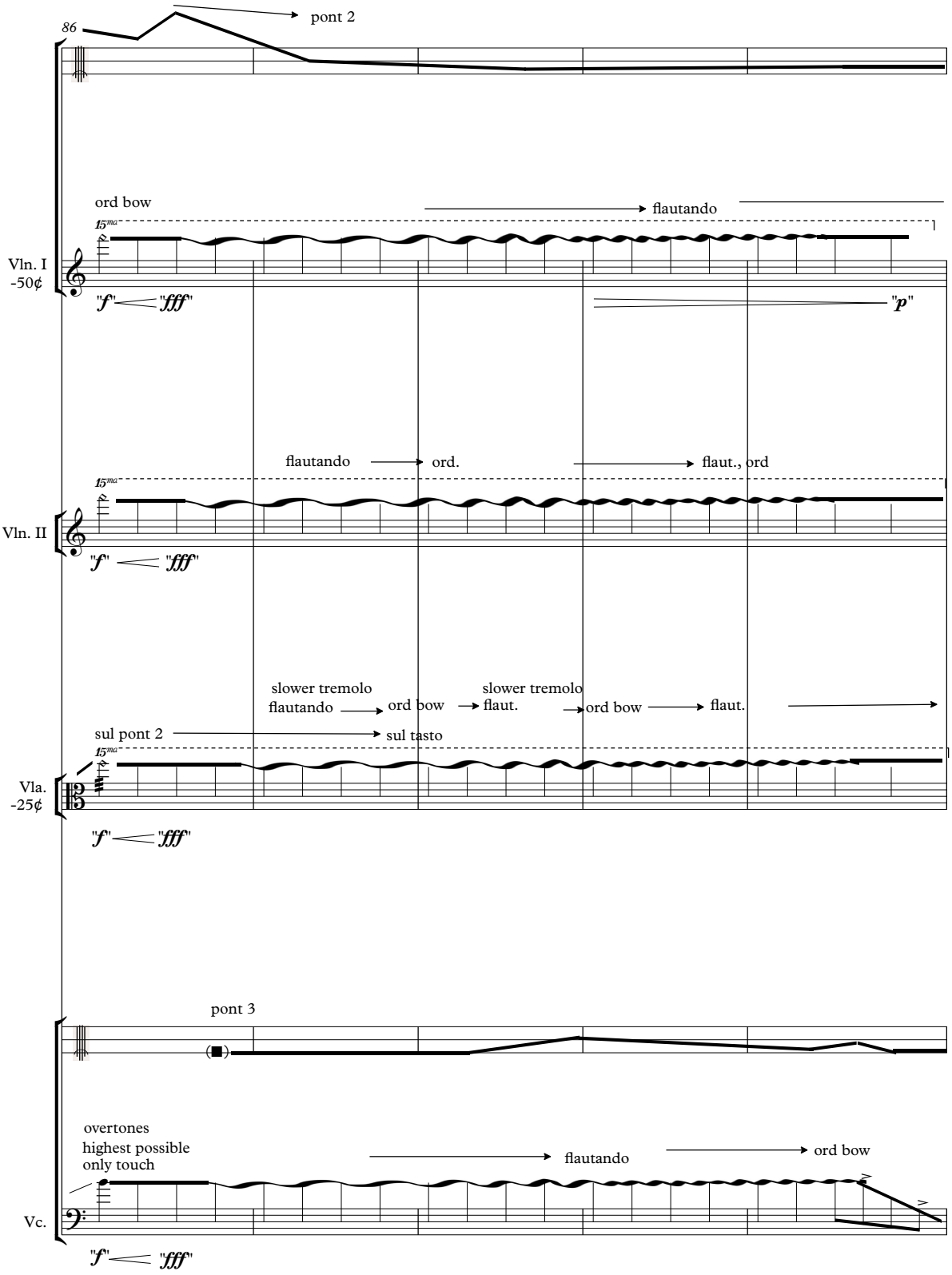

dry
(mute the strings)
sul pont.
(7th overtone from G)
67
Vln. I
-50¢
fp
3
"f"
dry
(mute the strings)
sul pont.
Vln. II
"ff"
fast
slow
fast
Vla.
-25¢
flaut
on the bridge
alto s.p
ord bow
flaut
ord bow
sempre same harmonic position
hit with l.h. "p";
with nail, edge of the fingerboard, percussive
Vc.
p
"ff" sempre

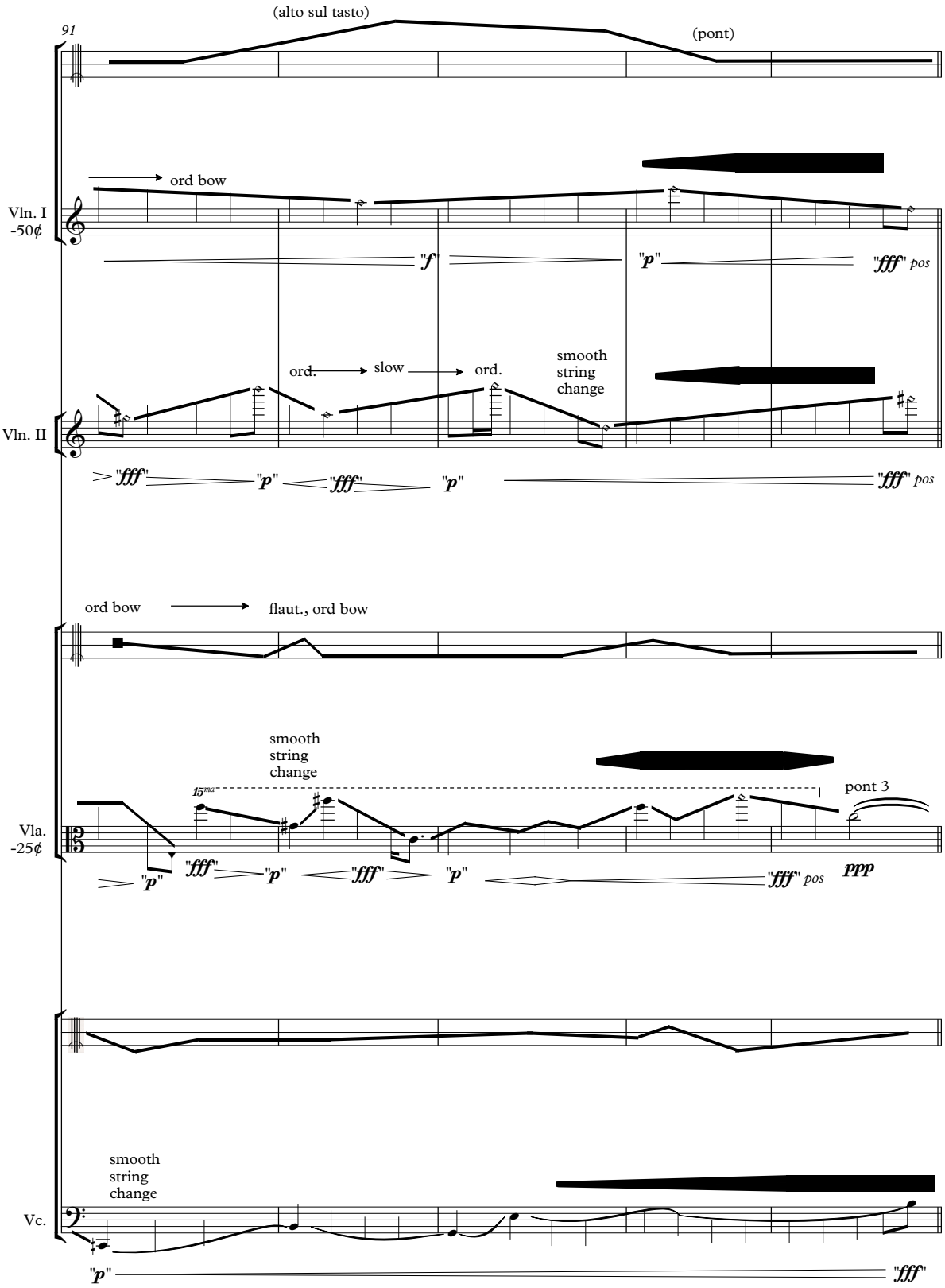

71
pont.3
alto sul tasto
flautando
ord bow
flautando
("p")
tasto
Vln. I
-50¢
"p"
"fff"
"f" hit to fingerboard
hit to fingerboard
Vln. II
fff
ppp
"p"
f
pont
beyond the bridge
alto sul tasto
hit on the wood with left hand ring finger
"f"
IV
Vla.
-25¢
"fff"
("fff") sempre
(
"fff"
Vc.

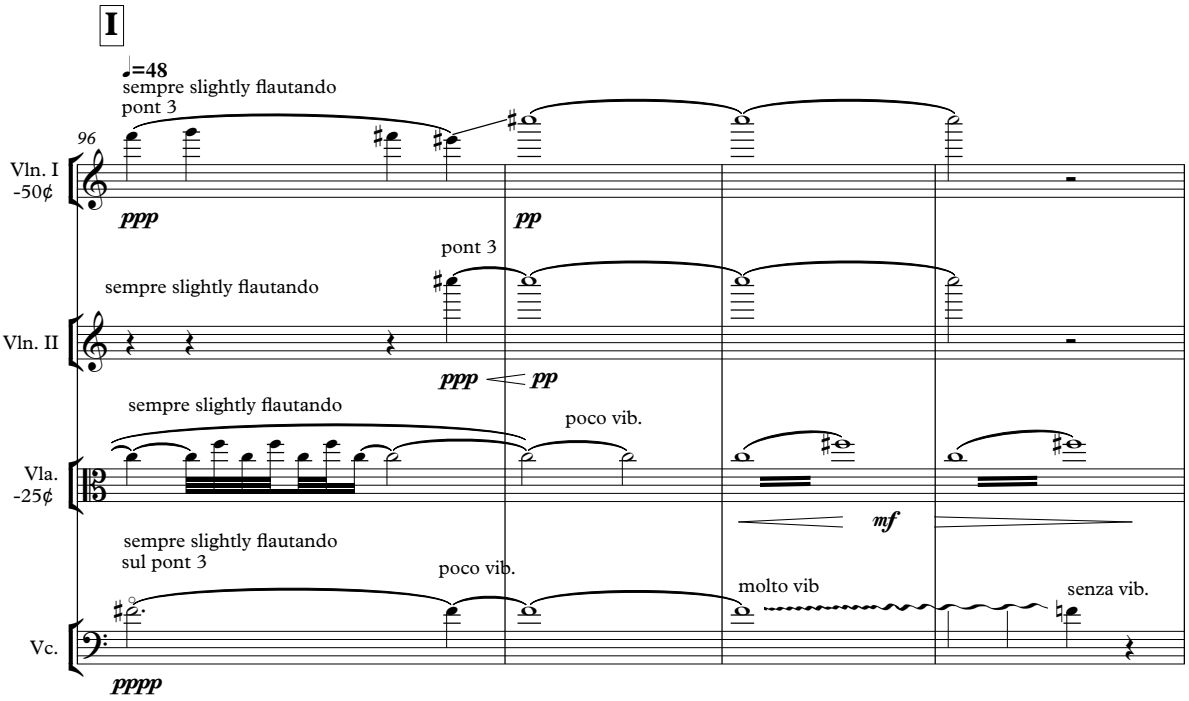

75
alto sul tasto
ord bow
"f"
pont 3
vib.
Vln. I
-50¢
fff
pont 3
vib.
slightly flautando
alto sul pont.
sul pont.
Vln. II
fff
fluctuation between ponticello 3 and 2
p
Vla.
-25¢
over the bridge
pont 1
pont 3
fff > pp
Vc.
"fff"

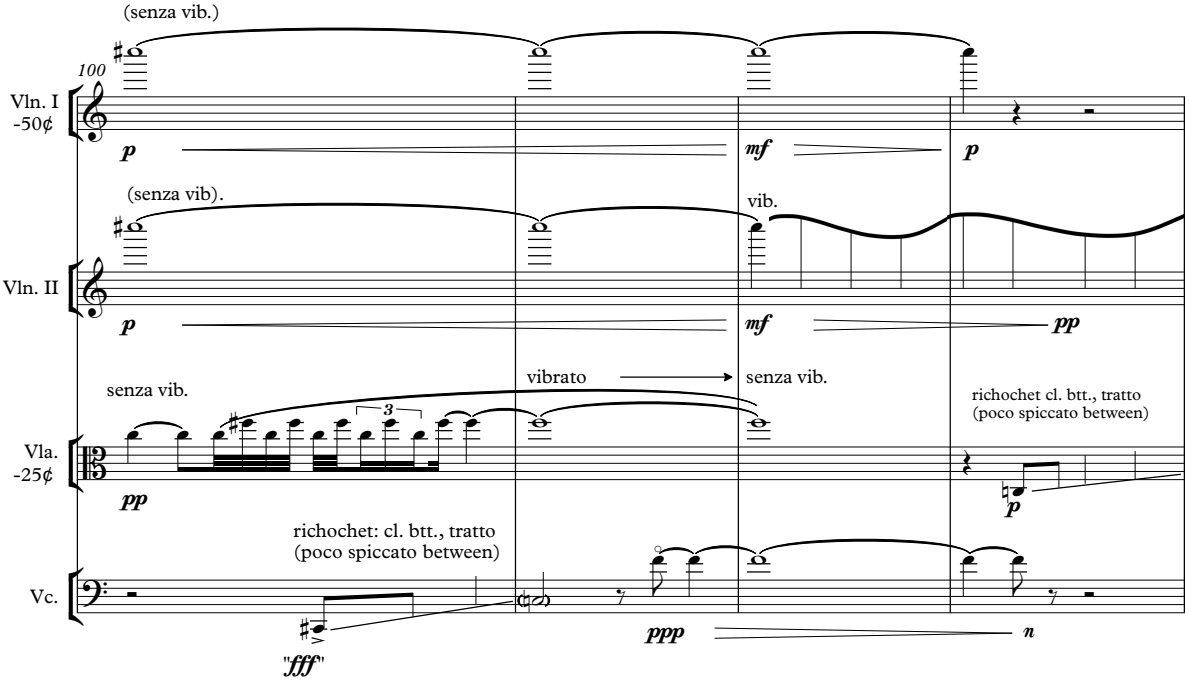

slow down and flautando gradually
78
Vln. I
-50¢
n
tasto
pont 3
sul tasto
sul pont.
Vln. II
n
"fff"
Vla.
-25¢
Vc.
3
(l.h pizz)

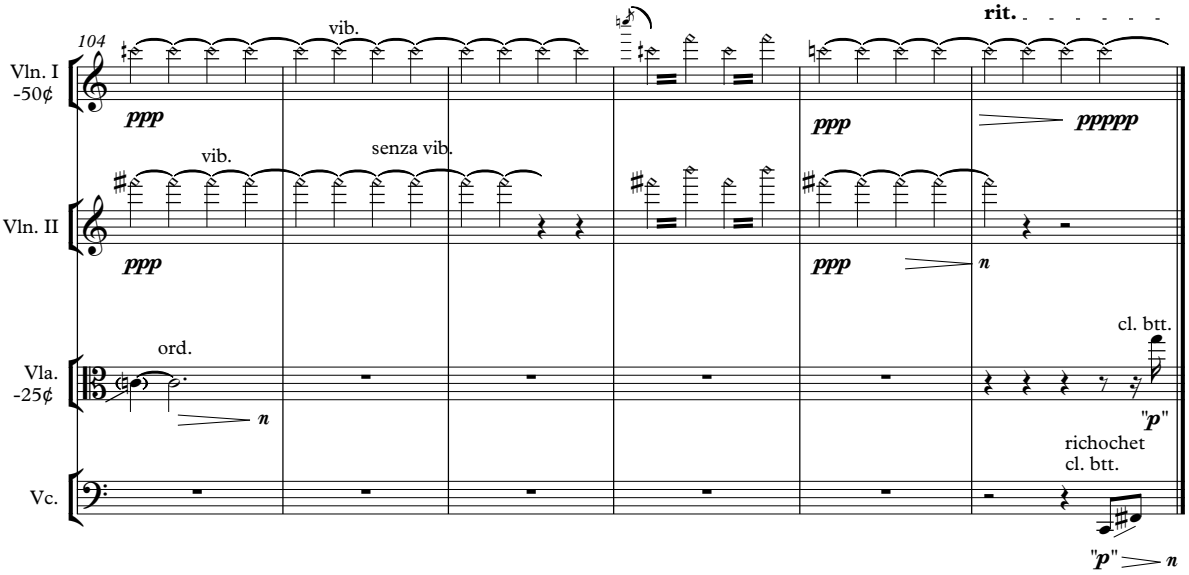

H
81
catch the overtones
pont 3
flaut., ord
flaut., ord
flaut., ord
(same interval relation)
flaut., ord
flaut., ord, flaut
random order, pace, and repeats
Vln. I
-50¢
"ppp"
catch the overtones
pont 2.
pont 3
random order, pace, and repeats
(same interval relation)
3
3
Vln. II
"ppp"
f
pont.
flaut. , ord
flaut., ord
flaut., ord
flaut., ord
flaut. , ord
flaut., ord
Vla.
-25¢
"fff"
pont.
flautando
ord bow
Vc.
"fff"
"f"


86
pont 2
ord bow
flautando
15ma
Vln. I
-50¢
"f"
"fff"
"p"
flautando
ord.
flaut., ord
15ma
Vln. II
"f"
"fff"
slower tremolo
flautando
ord bow
slower tremolo
flaut.
ord bow
flaut.
sul pont 2
sul tasto
15ma
Vla.
-25¢
"f"
"fff"
pont 3
overtones
highest possible
only touch
flautando
ord bow
Vc.
"f"
"fff"


91
(alto sul tasto)
(pont)
Vln. I
-50¢
ord bow
"f"
"p"
"fff" pos
Vln. II
ord.
slow
ord.
smooth
string
change
"fff"
"p"
"fff"
"p"
"fff" pos
ord bow
flaut., ord bow
Vla.
-25¢
smooth
string
change
15ma
pont 3
"p"
"fff"
"p"
"fff"
"p"
"fff" pos
ppp
Vc.
smooth
string
change
"p"
"fff"


I
♩=48
sempre slightly flautando
pont 3
96
Vln. I
-50¢
ppp
pp
pont 3
sempre slightly flautando
Vln. II
ppp
pp
sempre slightly flautando
poco vib.
Vla.
-25¢
mf
sempre slightly flautando
sul pont 3
poco vib.
molto vib
senza vib.
Vc.
pppp


(senza vib.)
100
Vln. I
-50¢
p
mf
p
(senza vib).
vib.
Vln. II
p
mf
pp
senza vib.
vibrato
senza vib.
3
richochet cl. btt., tratto
(poco spiccato between)
Vla.
-25¢
pp
p
richochet: cl. btt., tratto
(poco spiccato between)
Vc.
"fff"
ppp
n



Istanbul, Rome,
and Ithaca NY